S
639.11
N7hsfrp
1989

Library

# Hunter Survey

## Phase III: Final Report

STATE DOCUMENTS COLLECTION

FEB 21 2001

MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

U.S. Department of Energy
Bonneville Power Administration

Montana Department of Natural
Resources & Conservation

July 1989

MONTANA STATE LIBRARY
3 0864 0015 6611 9

# Garrison-Taft 500 kV Transmission Project

# Phase III Hunter Survey

## Final Report

*SUBMITTED TO*

Montana Department of Natural Resources and Conservation
Contract No. FS-SAJM-115

*SUBMITTED BY*

Stewart Allen, Ph.D.
2521 Idler's Rest Road
Moscow, ID 83843

**December 1, 1988**

Digitized by the Internet Archive
in 2015

https://archive.org/details/garrisontaft5001989alle_0

# TABLE OF CONTENTS

List of Tables iv

EXECUTIVE SUMMARY v

INTRODUCTION 1

SUMMARY OF PREVIOUS FINDINGS 2

PHASE III METHODS 4

- Questionnaire Content 4
- Sample Design 5
- Questionnaire Administration 6

PHASE III RESULTS 6

- Response rates 6
- Overall Evaluation of Hunting Area 7
- Reasons for Hunting in the Area 14
- Area Characteristics that Affected Elk Hunting 17
- Attitudes Toward Access Roads 19
- Perceptions of the Transmission Line 23

CONCLUSIONS 28

REFERENCES 30

APPENDIX A: Questionnaire and Cover Letter 31

APPENDIX B: Agency Comments on Draft Phase III Questionnaire 45

APPENDIX C: Summary of Findings, Montana Bioeconomics Study 51

# LIST OF TABLES

Table 1. Hunters' Attitudes Toward the Area Hunted 8

Table 2A. What Hunters Said They Liked Best About the Hunting Area 10

Table 2B. What Hunters Said They Liked Best About the Hunting Area 11

Table 3A. What Hunters Said They Liked Least About the Hunting Area 12

Table 3B. What Hunters Said They Liked Least About the Hunting Area 13

Table 4A & 4B. Percent of Hunters Who Said This Was Important/Very Important 15

Table 5. Most Important Reasons for Choosing Hunting Location 16

Table 6A & 6B. Characteristics That Detracted from Hunting 18

Table 7. Hunters' Attitudes Toward Number of Open Roads 20

Table 8. Hunters' Preferences for Access Road Management 21

Table 9. Hunters' Perceptions of Road Closure Violations (in %) 22

Table 10. Effects of the Transmission Line on Hunters 25

Table 11. Hunters' Perceptions of the Powerline's Impacts (in %) 26

# EXECUTIVE SUMMARY

The Phase III survey of hunters was conducted to assess the impacts of Bonneville Power Administration's 500-kV transmission line on elk hunting opportunities in western Montana. This survey was the final in a series of three that comprised the social component of the Elk Monitoring and Mitigation Project being conducted by several state and federal agencies.

A sample of hunters previously interviewed at check stations in 1986 were mailed a questionnaire asking about their use of the DeBorgia (western) study area and the Harvey Creek-Eightmile (eastern) study area during the 1987 general hunting season. Of the 567 questionnaires mailed, 58 were not deliverable and 381 were returned, an overall rate of 75 percent.

The 500 k-V line was a conspicuous landmark in the study areas. The majority of hunters (56 percent) said they were very familiar with the line. Only 17 percent said they were either slightly familiar with or had not seen the line.

Sixty-five percent of the hunters said they knew which roads were constructed for the line, and 49 percent walked along one or more of them while hunting in 1987. Nearly everyone (87 percent) said they had seen the line while hunting; 33 percent walked along the corridor, 26 percent crossed under it, and another 15 percent hunted within 1/4 mile of the line. Forty-six percent specifically said they hunted in the corridor during 1987.

About 44 percent of the western study area hunters and 41 percent of the eastern study area hunters said the line and its access roads changed the way they hunt the area. The proportions were higher for people who had hunted the study areas for more than five or more years (47 percent) than for those who hunted the areas five years or less (28 percent), showing that more long-term study area visitors were affected by the line.

Of the specific changes listed by the hunters, 17 percent were negative and 11 percent were positive. The most common positive response was that the line made it easier to hunt, presumably because of the increased road access and addition of a major landmark that made it harder to get lost. The most common negative response was that hunters used the area less frequently.

The transmission line towers and access roads were viewed negatively by about one-third of the hunters. Over half of the hunters (58 percent) said they were not affected by the transmission line towers, a proportion that didn't vary by study area. These findings varied with length of time hunting the area; 20 percent of the hunters using the area more than five years said the line strongly detracted from their enjoyment, compared to 9 percent of the hunters there five or fewer years.

# SUMMARY OF PREVIOUS FINDINGS

The Phase I (baseline) survey was conducted fall, 1983, before construction of the line. Its goal was to learn more about hunters who use the study areas and estimate how they would be affected by the line. The baseline study concluded that a majority of the hunters, about 57 percent, could be significantly affected by the transmission line and its associated roads. People who wanted to hunt near their homes to enjoy nature, avoid other hunters, and hunt away from roads were hypothesized to be the hunters at risk to be negatively affected by the line. Hunters who favored more road access should benefit.

The Phase II study was conducted Fall, 1986, to estimate impacts to hunter opportunity resulting from the line and its access roads. The study's six main research questions and their responses are provided below.

**1. Has hunter use of the study areas increased or decreased since the line was built?**

*Use levels at most check stations remained fairly constant, but fewer hunters were counted at Beavertail and DeBorgia in 1986 than were counted in 1983. This change could not be attributed to the line, however, because hunting use levels vary considerably from year to year. For example, DFWP statewide harvest survey data found that from 1980 to 1984, use of Hunting District 210 (where the eastern study area is located) increased two years and decreased three, with a difference of up to 43 percent (Thompson & Sterling 1986).*

**2. Has the type of hunting use (as measured by reasons for choosing hunting locations) changed in the study areas since the line was built?**

*Hunters' reasons for choosing to hunt in the study areas were nearly identical in 1986 and 1983, suggesting that the study areas were hunted for the same reasons in both years. An alternative explanation is that hunters rated the reasons based on why they hunt in general, instead of why they chose a specific area in which to hunt. In that case, the ratings wouldn't be expected to vary greatly from year to year. People hunted for similar reasons both in and outside the study areas, supporting this interpretation.*

*Data from the Montana Bioeconomics study also suggested that even though people may hunt in several different areas, they maintain a fairly consistent set of reasons for hunting. There is not a 1:1 relationship between the characteristics of a specific area and peoples' reasons for hunting there. For example, the cluster analysis conducted on the Bioeconomics study data found that people hunting in one specific area may have very different motivations for hunting in that area. In other words, reasons for hunting remained consistent after the line was constructed, but the line still could have affected hunter opportunity.*

### 3. Has the quality of hunting changed, as measured by the percentage of hunters who said they were hunting in their favorite or one of their favorite areas?

*Roughly the same proportion of hunters said they were in their favorite hunting location each year. However, people who hunted outside the study areas rated those areas as more favorable than did people hunting in the study areas ($t = 4.16$, $p < .01$). For example, 20 percent of the control group said they were hunting in their favorite area, compared to 13 percent of the experimental group. Thirteen percent of those in the experimental group said they prefer to hunt elsewhere, compared to only three percent of the control group. Of course, hunters could say an area was still their favorite after changes they didn't prefer took place there, so this question alone did not suggest that no impacts occurred.*

### 4. Have kill rates increased, especially of spike bulls?

*Harvest rates did not appear to increase in the eastern study area, although they may have in the western area; the number of spikes killed rose from three in 1983 to 10 in 1986. This difference could not be attributed to the line, however, without longer-term data that could account for variation in other factors affecting harvest rates, such as weather.*

### 5. Did hunters who were hypothesized to be the most adversely affected leave the study areas after the line was built?

*If this happened, we could expect to see an aggregate decrease in the average number of years people had hunted the study areas. In 1983, respondents said they had been hunting in the study areas for an average of six years. This was close to the level reported by non-study area hunters (the control group). In 1986, the average for study area hunters was just over eight years, for both study area and non-study area hunters.*

*This is about the difference that would be expected if the same population kept using the same areas from year to year. These results suggest that a large percentage of long-time users continued to use the study areas after the line was built. However, an alternative explanation was that some first-year hunters came into the area and some long-term hunters left, meaning that the average number of years hunted would stay about the same.*

*The question also is complex because many hunters who live near the study areas and have hunted there many years may have continued to hunt there even if they didn't favor the setting changes caused by the line. They could simply hunt within the study area but avoid the line, or accept what they define as a decrease in quality because of the area's other, positive characteristics.*

### 6. What are hunters' attitudes toward access roads and road closures?

*As predicted, some hunters appreciated the new roads, while some viewed them as negative; the same was true of attitudes toward road closures. About twice as many hunters said there were too many roads and too few closures as said they favored fewer closures and more roads. Over half of the hunters who wanted fewer roads wanted more closures, while 83 percent of the hunters who favored more roads wanted fewer closures.*

*The Montana Bioeconomics Study results suggested that once roads are there, hunters may want to use them--even if they would have preferred not to have the roads in the first place.*

## PHASE III METHODS

**Questionnaire Content.** The questionnaire content was developed from two principal sources: the Phase II questionnaire and report; and the Montana Bioeconomics Study (Allen, 1988). The survey contained sections on past elk hunting experience, characteristics of 1987 hunting season trips to the study areas, road management preferences, and demographic information.

Unlike the Phase I and II studies, Phase III directly addressed the transmission line, asking hunters about their use of the corridor and access roads and hunters' perceptions of the line's impacts on hunting. Appendix A contains the Phase III questionnaire; appendix B contains agency comments on the draft survey form.

Compatibility with the Bioeconomics study was desirable so we could assess the generalizeability of the Phase III findings to other hunting areas along the line. An added benefit was the potential to estimate dollar values for changes in hunter opportunities resulting from the line, based on comparisons between study area hunters and broader populations of Montana elk hunters (Appendix C contains a summary of the results from the Bioeconomics study).

Most of the questions asked hunters about their 1987 trips to "This Area." If the respondent had hunted at least once in a study area during the 1987 elk season, he or she circled the area hunted on the map provided in the questionnaire. Subsequent questions were directed to that area. If respondents had not hunted in or near the study area, they were asked to indicate the area they hunted elk most frequently during the 1987 season, and to answer the questions about that specific area.

**Sample Design.** The survey was a panel study because the hunters were a subset of those contacted at check stations during the Phase II survey. The sample consisted of 184 hunters interviewed at the two eastern study area check stations and 383 hunters interviewed at the five check stations set up in the western study area.

The total sample size was 567 (80 percent of the hunters contacted onsite for the Phase II study). All respondents had hunted in or near the study areas in 1986; the hunters who did not return there in 1987 were of interest as people potentially displaced by the line.

**Questionnaire Administration**. Survey design and administration techniques were adapted from Dillman's (1979) Total Design Method. This method is designed to motivate potential respondents to participate in the survey for a variety of reasons, typically producing high rates of response. Questionnaire content, appearance, and mailing techniques are all critical. The questionnaire booklet, a cover letter (Appendix A), and an addressed, postage paid return envelope were mailed to the sample on May 15, 1988. Ten days later, all hunters received a postcard thanking them if they'd already returned the questionnaire and repeating the request for help if the hunter had not responded. Two weeks later, a second cover letter was mailed to non-respondents, along with another copy of the questionnaire.

## PHASE III RESULTS

**Response Rates.** Of the 567 questionnaires mailed, 58 were not deliverable and 381 were returned, an overall rate of 75 percent. The rate of response was 73 percent for eastern study area hunters (184 mailed, 25 not deliverable, 115 returned) and 76 percent for western study area hunters (383 mailed, 33 not deliverable, 265 returned). These proportions were well within acceptable limits for mail surveys.

The questionnaire contained in Appendix A shows how the total sample responded to all of the questions. Readers may wish to skim those results for the overall picture. Appendix C contains the additional comments made by hunters on the back page of the questionnaire, organized by what check station the hunter was interviewed at in 1986. This provided a wealth of information about hunters' specific concerns.

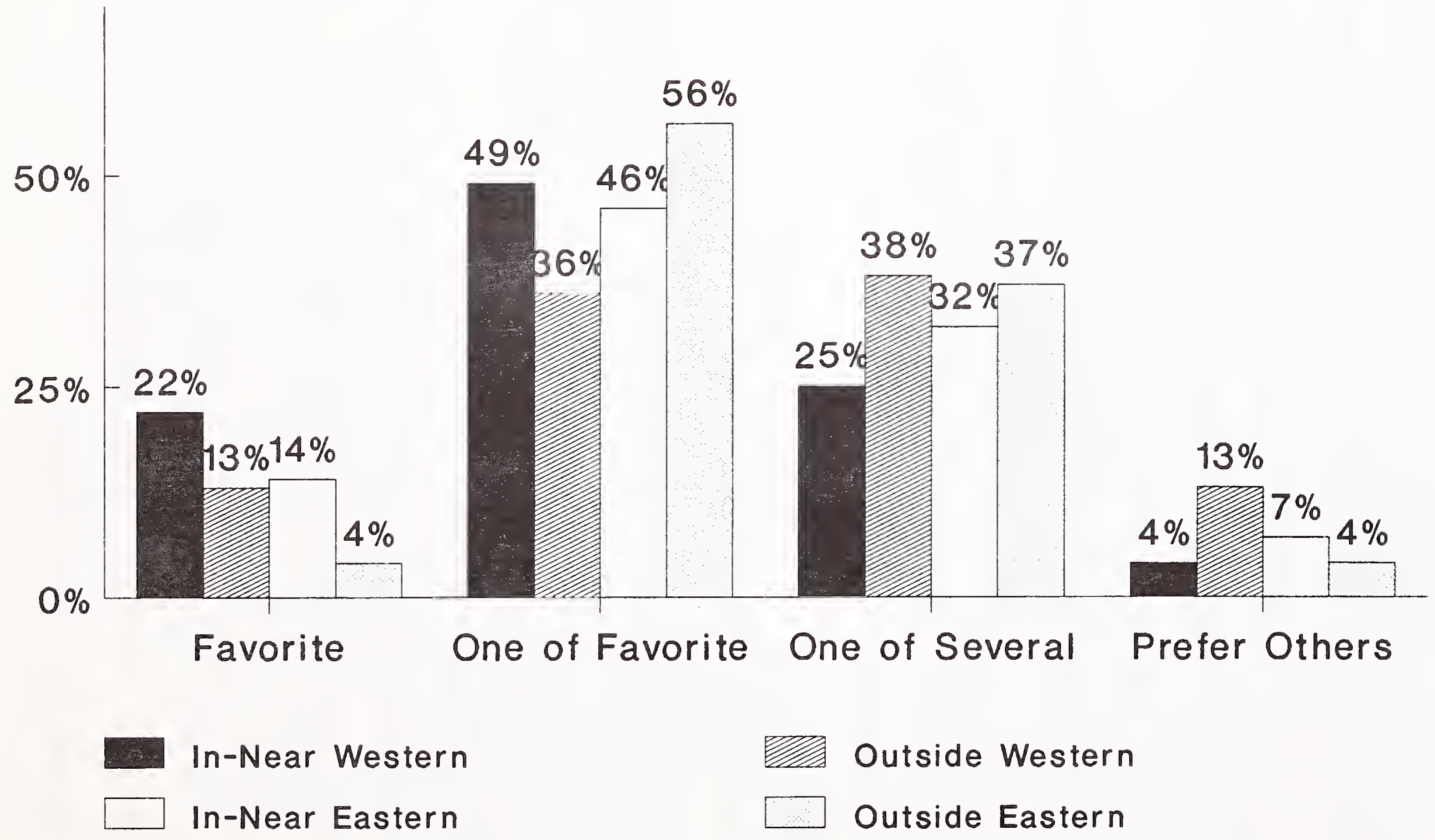
The responses discussed below were those of direct relevance to estimating impacts of the line, along with other variables that helped to explain the nature and extent of any impacts. The results generally are presented for four separate subgroups: people who hunted in the western study area in 1987 (n = 207); people who did not hunt in the western study area in 1987 but had been interviewed there in 1986 (n = 52); people who hunted in the eastern study area in 1987 (n = 84); and those who did not hunt there in 1987 but were interviewed there in 1986 (n = 30).

Other key variables are examined when they further explain some finding. For example, one set of analyses studied the differences between the 168 hunters who'd hunted in the study area more than five years (so were there before the line was built) and the 195 hunters who'd only hunted the study areas since the line and access roads were constructed.

**Overall Evaluation of Hunting Area.** Seventy-one percent of the hunters using the western study area said they were hunting in their favorite or one of their favorite areas, compared to 49 percent of the hunters who didn't use the western study area last year (Table 1). The difference suggested that if hunters were displaced from the study area they found the alternative hunting areas less attractive.

This rating varied with experience; 22 percent of the hunters who had visited the area for more than five years said it was their favorite, compared to 13 percent of the hunters using the area five years or less. This was expected because longer exposure to a hunting area should result in a greater liking for the area. In the Phase II study, more western than eastern study area hunters said they were hunting in their favorite place, a finding replicated in the Phase III study.

# Table 1. Hunters' Attitudes Toward The Area Hunted



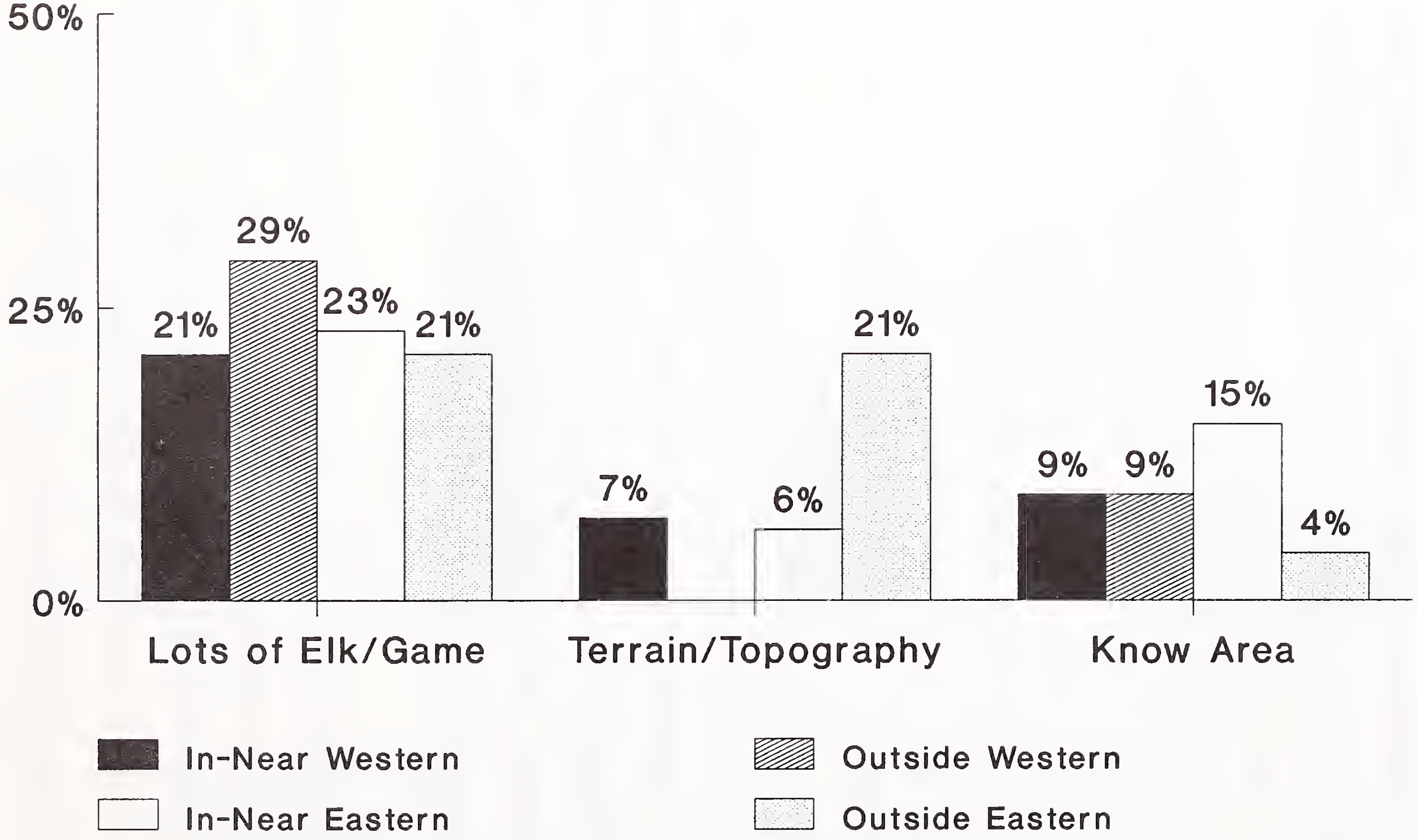
When asked what they liked best about the area, western study area hunters said they liked hunting close to home, in a place with lots of elk and few other hunters (Table 2). Eastern study area hunters rated the same attributes the highest, along with being in an area where they knew about the elk. The people who didn't hunt in the study areas valued a similar set of attributes.

When asked what they liked least, western study area hunters said there were too many other hunters, not enough elk, too few roads and too many closures, or too many roads and too few closures. The terrain and vegetation were listed more as negative attributes than positive ones, perhaps references to the often steep and densely wooded terrain in the western study area (Table 3).

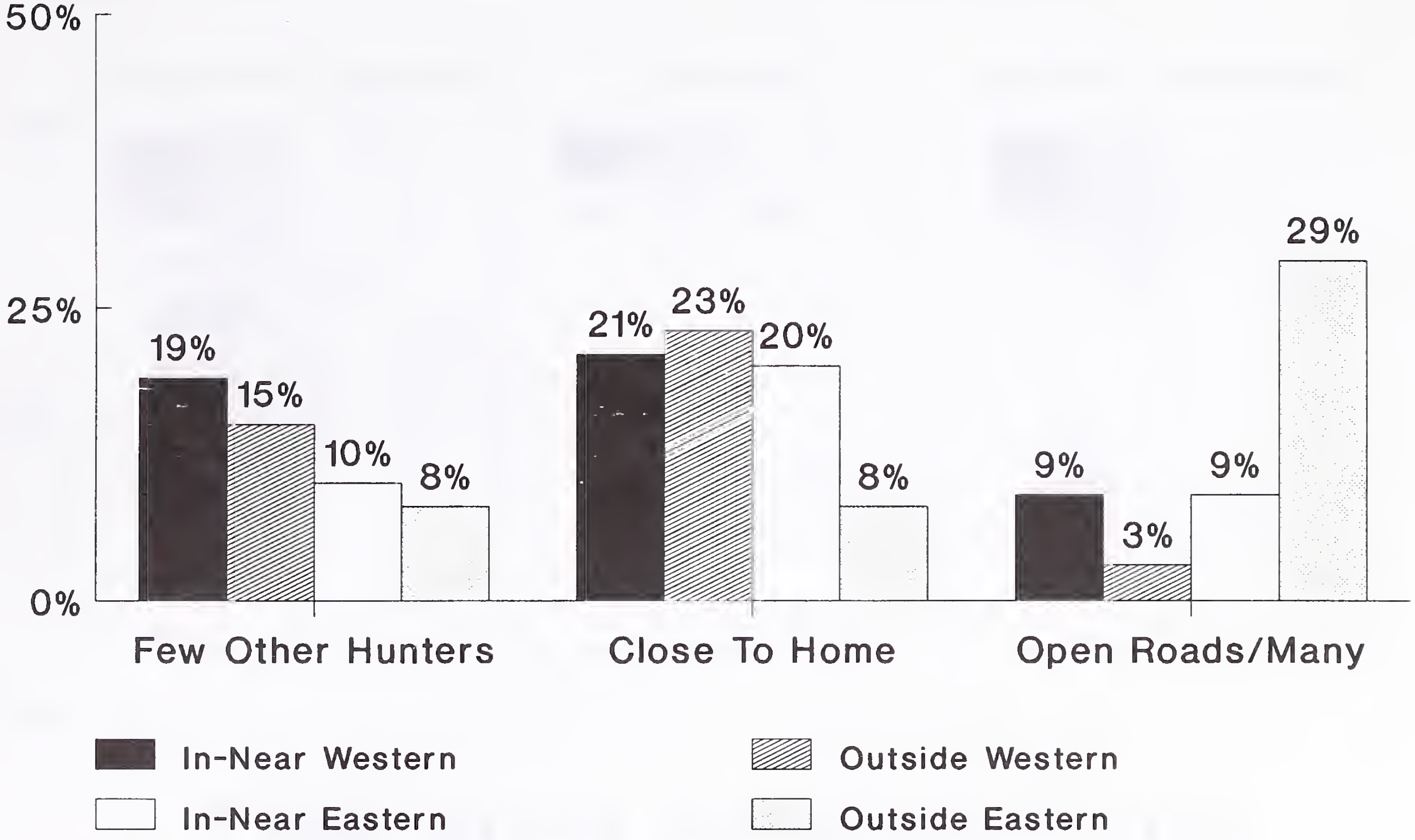
The findings on roads were worth a closer look. Equal numbers of western study area hunters said what they liked best was: (1) the large number of roads and open roads; and (2) the small number of roads and many road closures. This demonstrated that hunters may differ in their preferences for road access within a hunting area, yet still find satisfaction in the same setting. Different types of hunters can pursue different harvest strategies; some may stay close to the roads in an area, while others will take off on foot immediately and avoid roads. They can both get what they want in the same area.

The transmission line was mentioned as the least-liked aspect of the study area by four percent of the western and eastern study area hunters. This relatively low proportion suggests that the line did not remain in hunters' memories as the least-liked characteristic of the study areas. The transmission line had not yet been referred to on the survey form, although some hunters may have paged through the questionnaire first, and some hunters have known about the study's purpose since 1983.

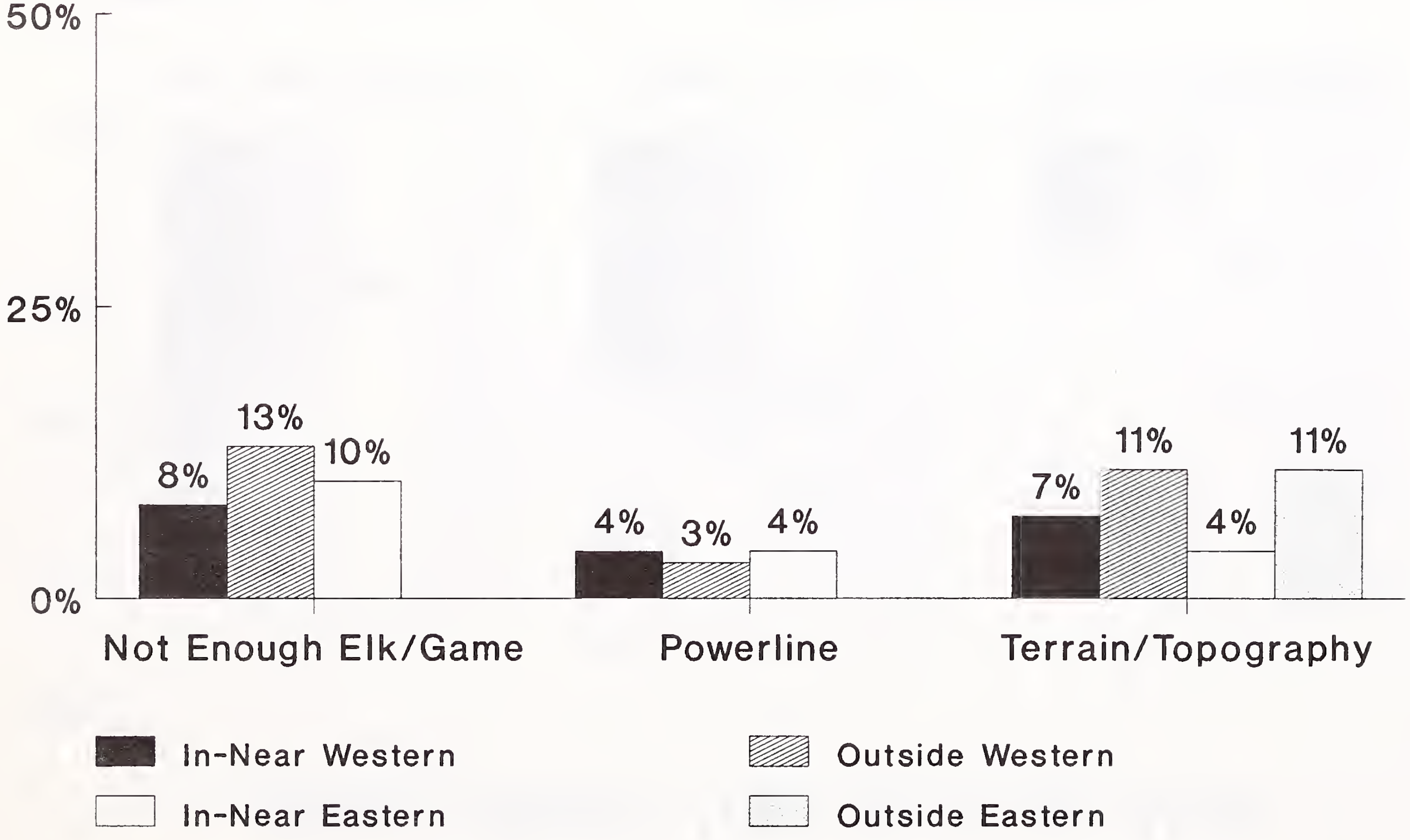
# Table 2A. What Hunters Said They Liked Best About the Hunting Area



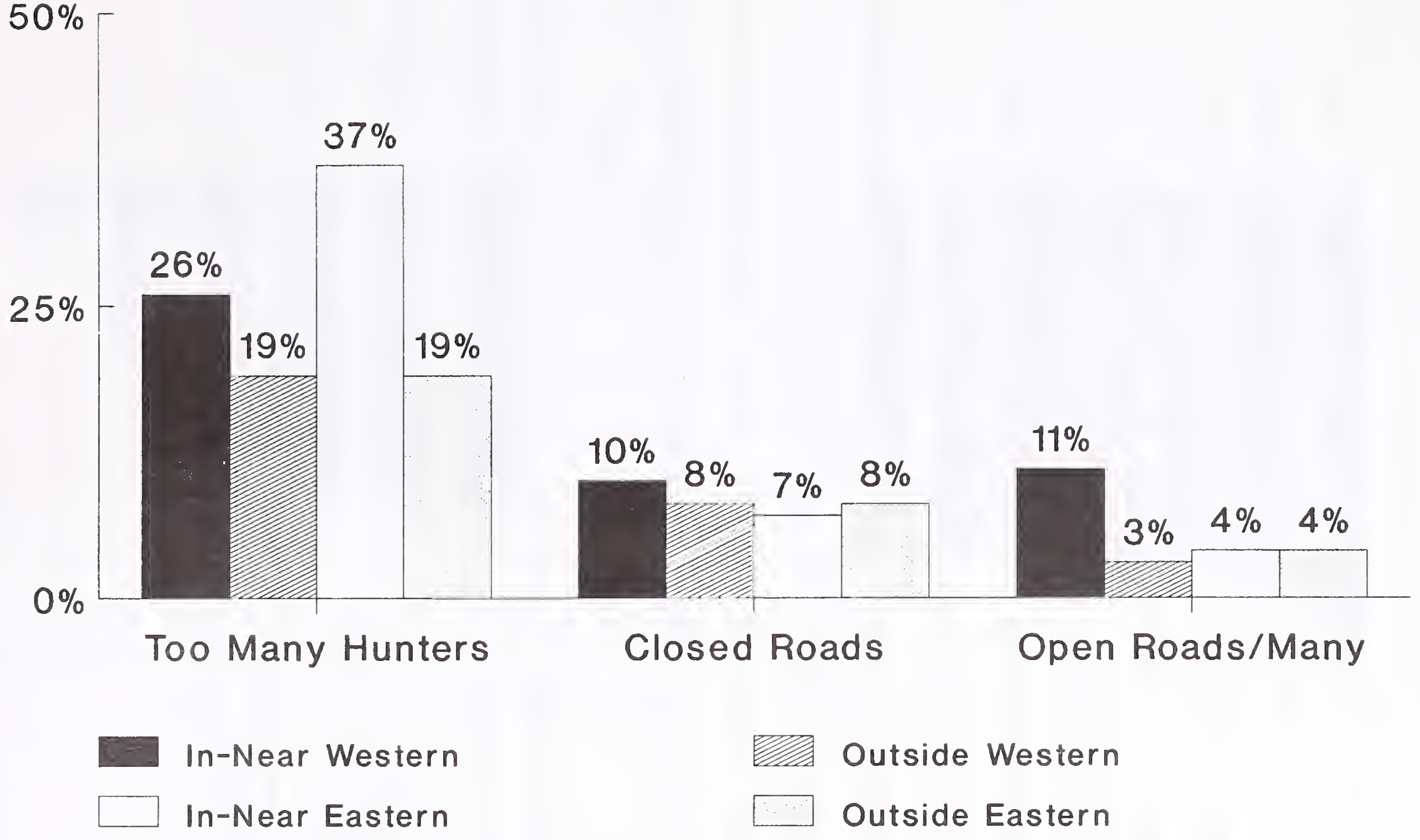
# Table 2B. What Hunters Said They Liked Best About the Hunting Area



# Table 3A. What Hunters Said They Liked Least About the Hunting Area



# Table 3B. What Hunters Said They Liked Least About the Hunting Area



**Reasons for Hunting in the Area.** Hunters said the most important reasons they hunted where they did were to be outdoors, for the meat, for the solitude, because of the elk populations, and to view the scenery (Table 4). These responses were very similar to those in the Montana Bioeconomics Study (see Appendix C suggesting that a broad range of elk hunters value these characteristics, regardless of where they hunt.

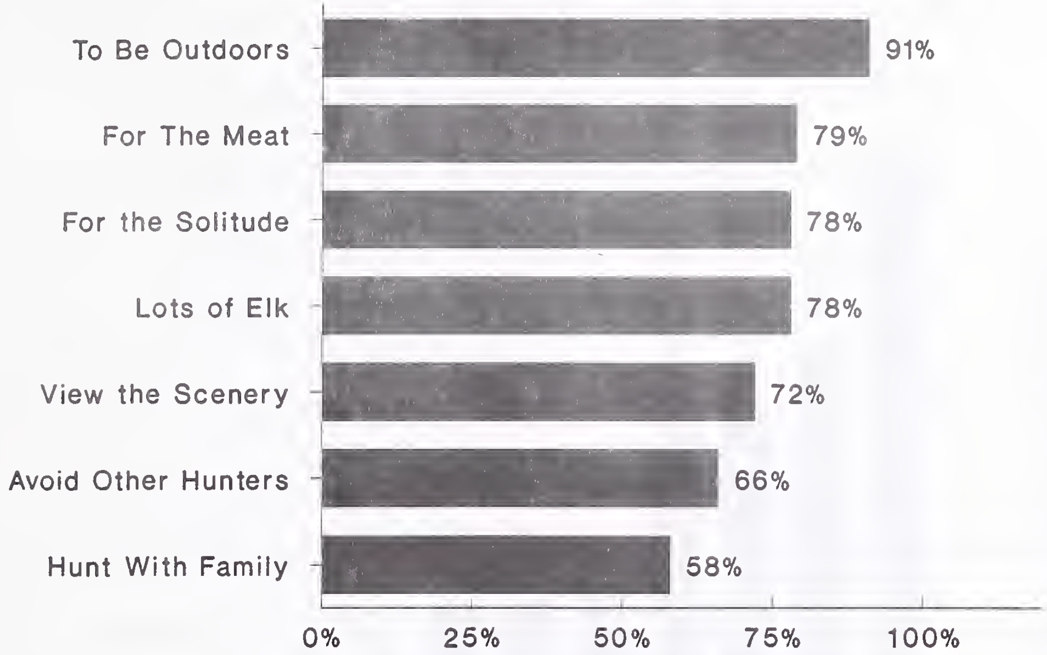
Later on, we will see how these characteristics related to attitudes toward the transmission line and access roads. A followup question asked hunters to circle the numbers of the three most important reasons; Table 5 shows these responses, which may be a better indication of relative importance.

The Phase II study found that avoiding other hunters and enjoying scenery were more important to western than eastern study area hunters. The 1987 data showed that more western than eastern study area hunters valued solitude, large elk populations, and avoiding other hunters. Eastern study area hunters rated hunting close to home as more important.

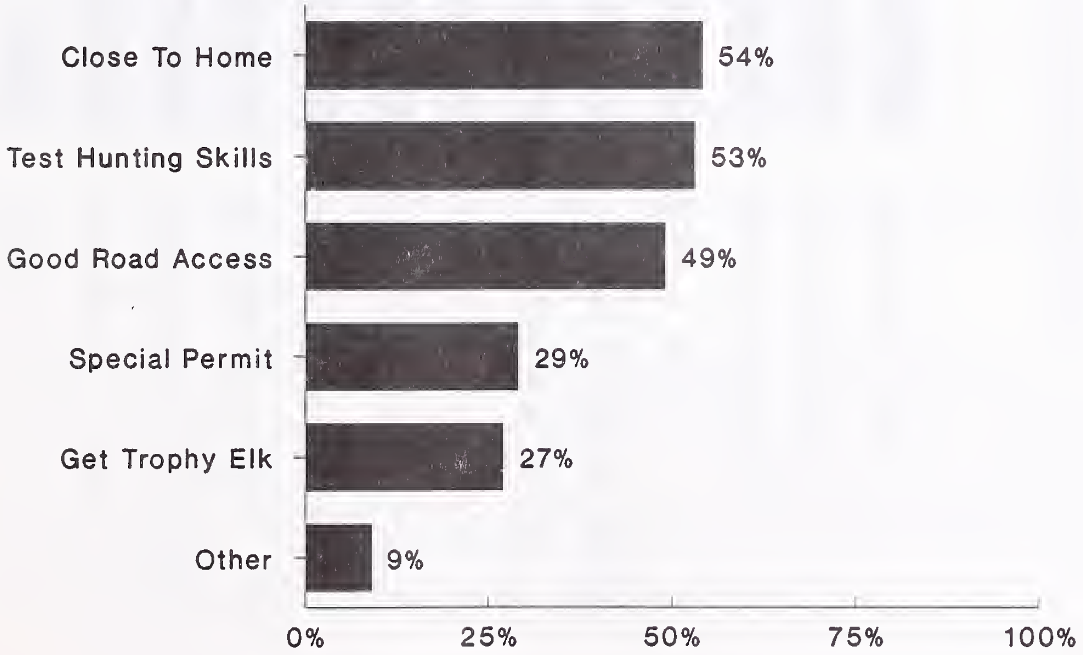
Solitude, getting a trophy elk, and enjoying the scenery were rated as more important by hunters who left the study area in the 1987 season than to hunters that remained--some of the reasons these hunters may have left the study areas.

Hunters who had used the area for more than five years rated hunting close to home and viewing scenery as more important, and rated good road access as less important than did hunters using the area for five or fewer years.

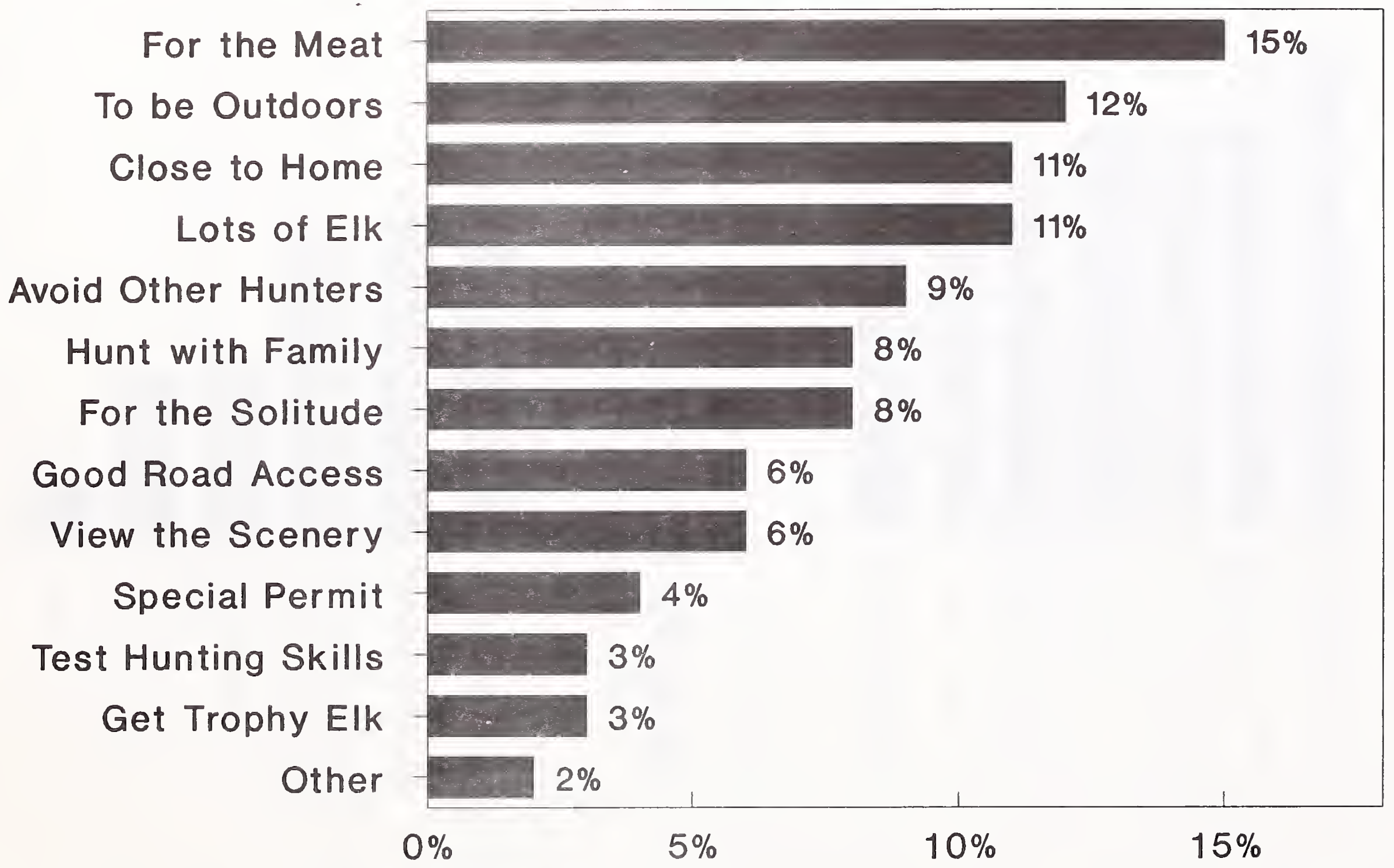
## Table 4A. Percent of Hunters Who Said This Was Important/Very Important



## Table 4B. Percent of Hunters Who Said This Was Important/Very Important



# Table 5. Most Important Reasons for Choosing Hunting Location



**Area Characteristics that Affected Elk Hunting**. Hunters were asked to evaluate 12 things they may have seen or experienced while hunting in the area last season. Embedded in this list were two items specific to the line; other items, such as open and gated roads, also had a bearing on the line and its effects.

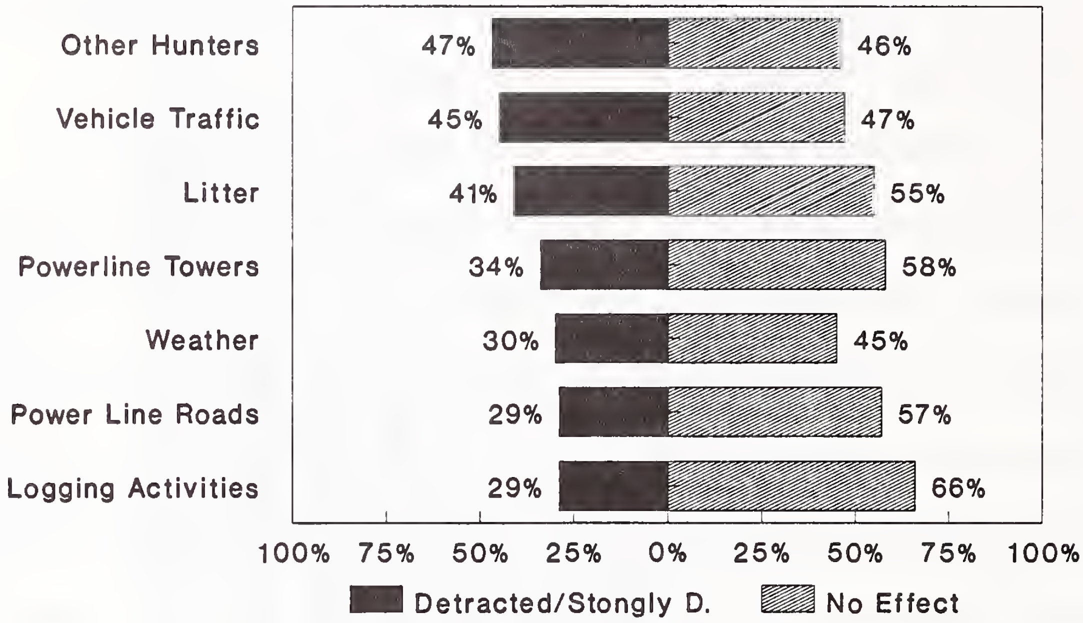
The most important detractors were other hunters, vehicle traffic, litter, transmission line towers, the weather, transmission line access roads, and logging activities (Table 6). The proportions were about the same regardless of study area hunted. Eastern study area hunters were more likely to say clearcuts detracted from their hunting, understandable because that area has been logged more heavily.

Gated roads added more to the experience, and open roads detracted less, for eastern study area hunters than they did for western study area hunters. These results suggested that the transmission line towers and access roads were viewed negatively by about one-third of the hunters. Over half of the hunters (58 percent) said they were not affected by the transmission line towers, a proportion that didn't vary by study area.

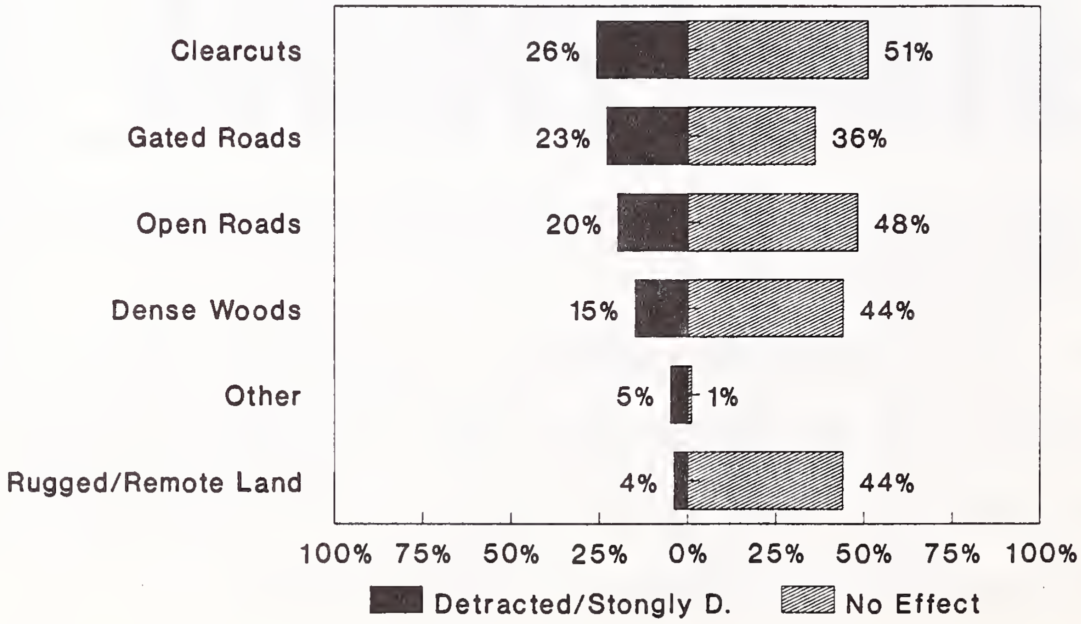
The hunters who objected to the transmission line towers were the same ones who objected to the transmission line roads; 63 percent of the hunters who said the towers strongly detracted from their enjoyment also said the roads strongly detracted. Seventy-six percent of those who said the towers didn't affect their enjoyment said the same of the transmission line roads.

These findings varied with length of time hunting the area; 20 percent of the hunters using the area more than five years said the line strongly detracted from their enjoyment, compared to 9 percent of the hunters there five or fewer years. The same was true of responses regarding transmission line access roads.

# Table 6A. Characteristics That Detracted From Hunting



# Table 6B. Characteristics That Detracted From Hunting



**Attitudes Toward Access Roads**. The Phase III survey contained several questions about access not already discussed. Table 4 showed that a slight majority of hunters rated good road access as not very or not at all important a reason they hunted where they did. Table 5 showed that in both study areas open roads detracted from more hunters' experiences more than they added to hunters' experiences.

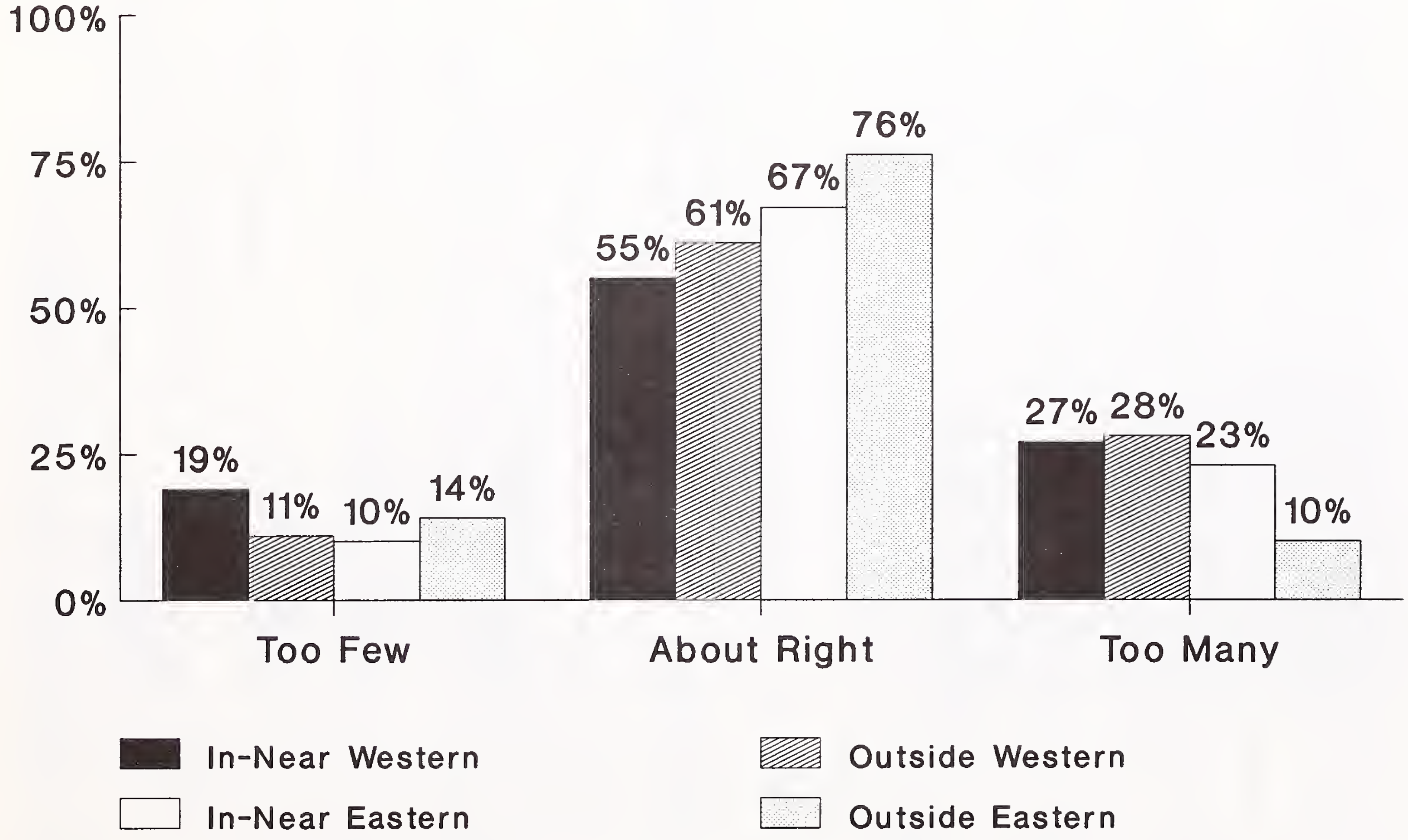
However, it was clear that a diversity of opinions existed. Fifteen percent of the hunters said there were too few open roads in the area, 24 percent said there were too many, and 61 percent said the number was about right (Table 7). These numbers were comparable to the region-wide rates found in the Bioeconomics study.

More hunters said recently-constructed roads should be gated and locked (43 percent) than said they should be left open for hunting (25 percent) or eliminated entirely (15 percent). These proportions were consistent with other results, reflecting hunters' concerns over increased road access to their hunting areas (Table 8).

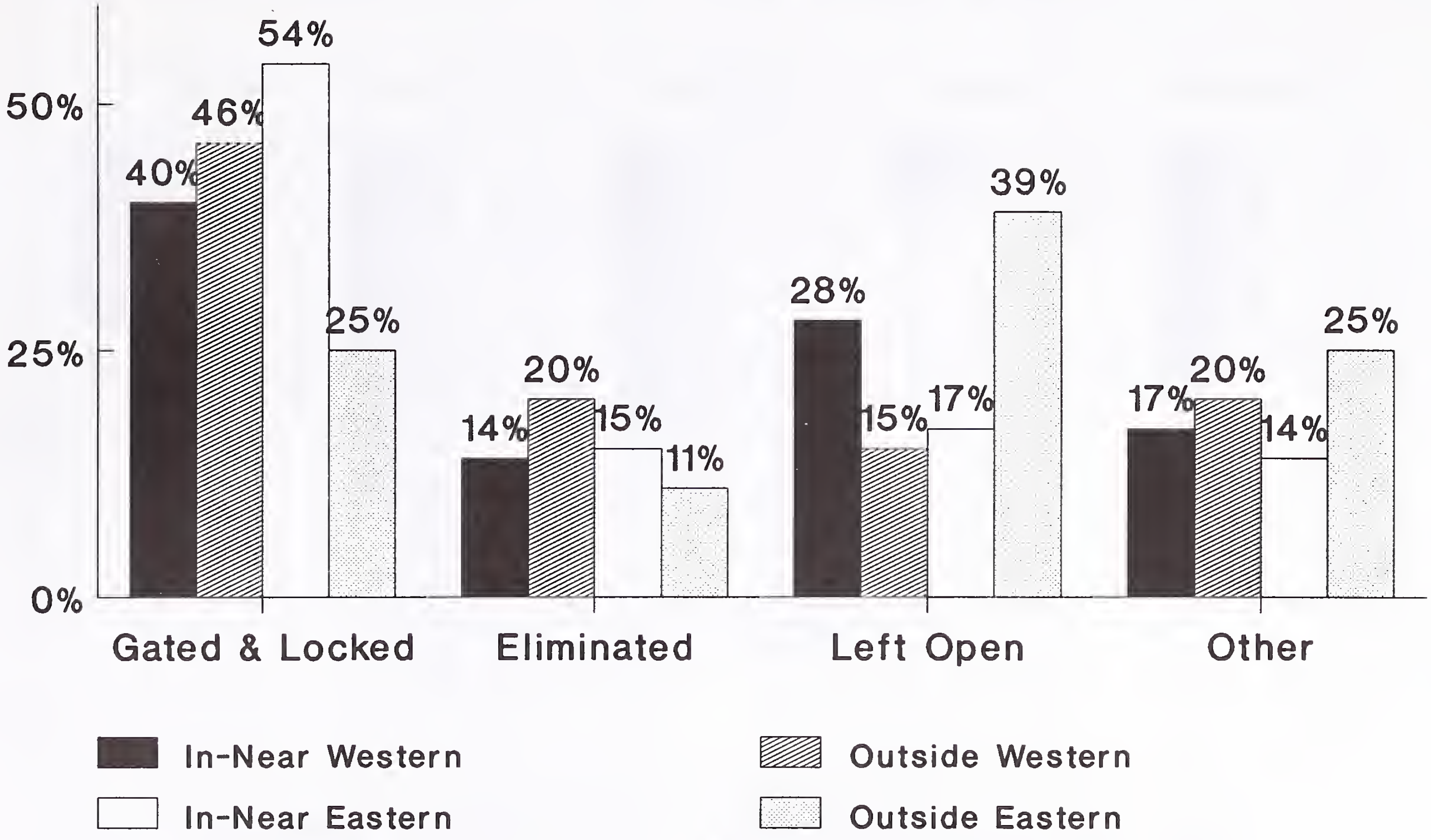
However, hunters perceived that closing roads was not always effective; 13 percent said road closures were frequently violated, and 33 percent said they were sometimes violated, while only 6 percent said closures were never violated (Table 9). Seventeen percent of the hunters who'd been in the area more than five years thought that road closures were frequently violated, compared to 8 percent of the hunters there five or fewer years.

The basis for hunters' perceptions was not explored, but field contact and open-ended comments suggested that signs of violations (such as vehicle tracks going around a locked gate) were not uncommon. Several hunters interviewed in 1986 suspected that unauthorized hunters had keys to some of the locked gates.

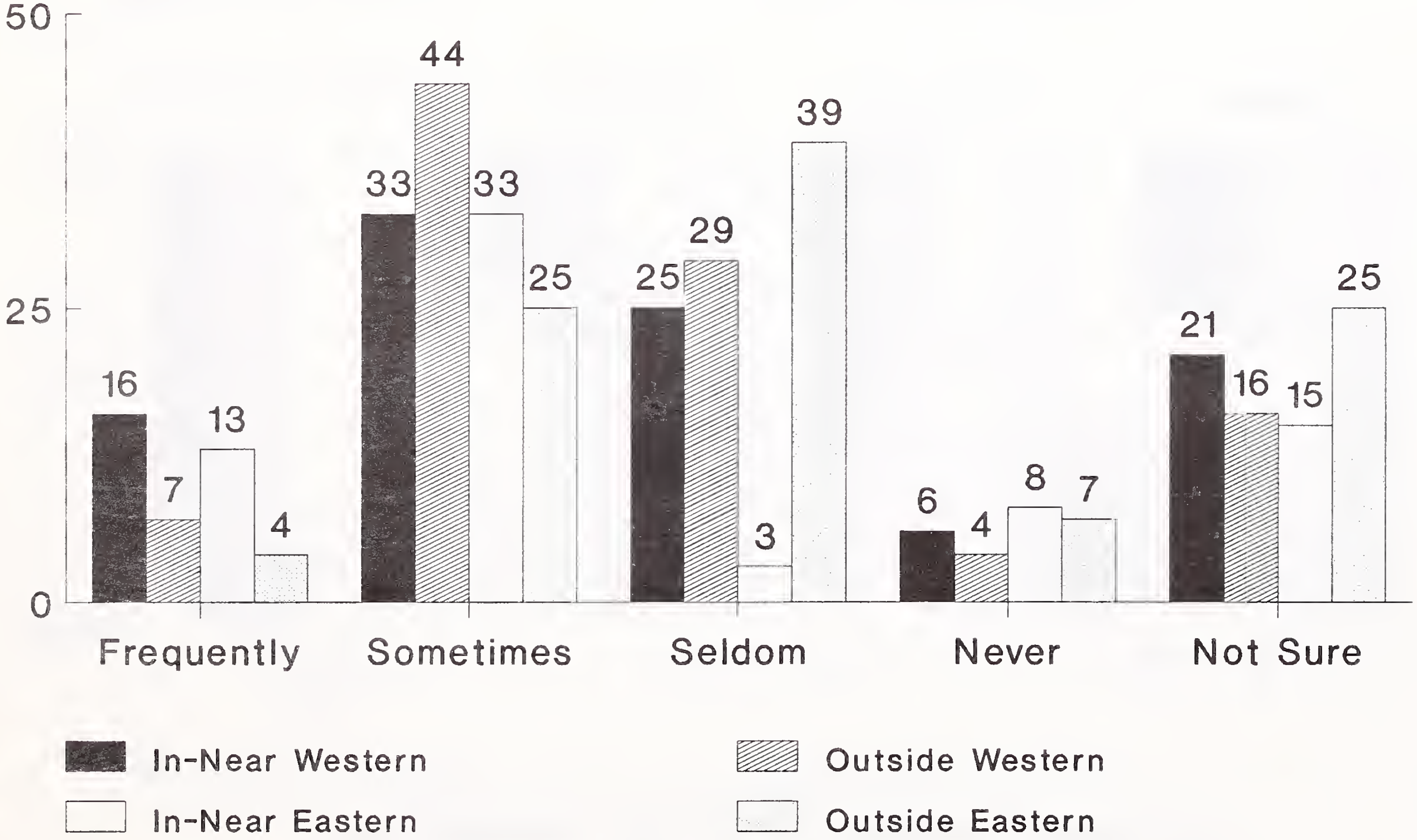
# Table 7. Hunters' Attitudes Toward Number of Open Roads



# Table 8. Hunters' Preferences For Access Road Management



# Table 9. Hunters' Perceptions Of Road Closure Violations (in %)



**Perceptions of the Transmission Line.** The questionnaire contained a sketch of the transmission line so hunters wouldn't confuse it with other types of lines found near the study area. The line was a conspicuous landmark in the study areas. The majority of hunters (56 percent) said they were very familiar with the line; this number was about 10 percent higher for hunters in the area more than five years and 10 percent lower for hunters there five or fewer years. Only 17 percent said they were either slightly familiar with or had not seen the line.

Sixty-five percent of the hunters said they knew which roads were constructed for the line, and 49 percent walked along one or more of them while hunting in 1987 (36 percent said they did not use the powerline roads). A full 87 percent said they had seen the line while hunting in 1987; 33 percent walked along the corridor, 26 percent crossed under it, and another 15 percent hunted within 1/4 mile of the line. Forty-six percent specifically said they hunted in the corridor during 1987.

When asked if the line and its access roads changed the way people hunt the area, 38 percent said yes and 54 percent no. The proportions were higher, naturally, for people who hunted inside the study areas--44 percent in the western area and 41 percent in the eastern. The proportions also were higher for hunters there five or more years (47 percent) than those who hunted the area five years or less (28 percent), again showing greater impacts to longer-term study area visitors.

Of the specific changes listed by the hunters, 17 percent were negative and 11 percent were positive (Table 10). The most common positive response was that the line made it easier to hunt, presumably because of the increased road access and addition of a major landmark that made it harder to get lost. The most common negative response was that hunters used the area less frequently.

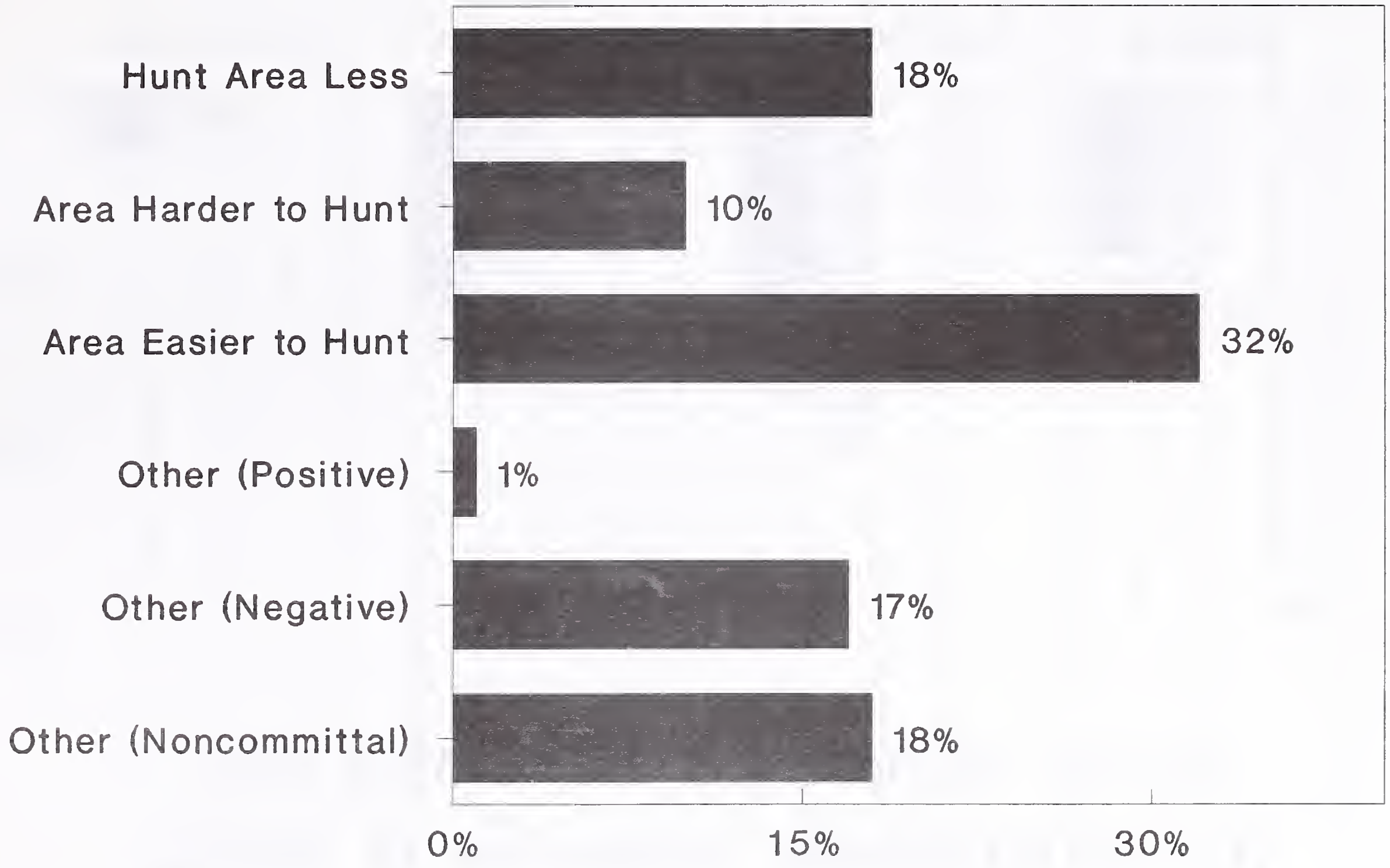
An earlier question had asked hunters if they planned to change how often they hunt the area and, if so, why. Among the 19 percent who said their use would decrease and the 7 percent who said it would increase, most (36 percent) cited reasons not specific to the site, such as their age, health, and the cost or availability of hunting licenses and permits. Another 25 percent of the reasons were game-related, and 17 percent people-related (such as, "too many hunters here"). Thirteen percent cited reasons related to access, and only about three percent mentioned the powerline. The responses of eastern and western study area hunters were similar.

Some western study area hunters (23 percent) said they knew people who'd started using the area because of the line and it roads, and 23 percent said they knew people who had stopped using the area. Hunters in the area for a longer time knew more people who had either stopped or started using the area. Fewer eastern study area hunters (8 percent) knew others who had started using the area, and more (26 percent) knew people who had stopped, suggesting that displacement may have been greater in the eastern study area.

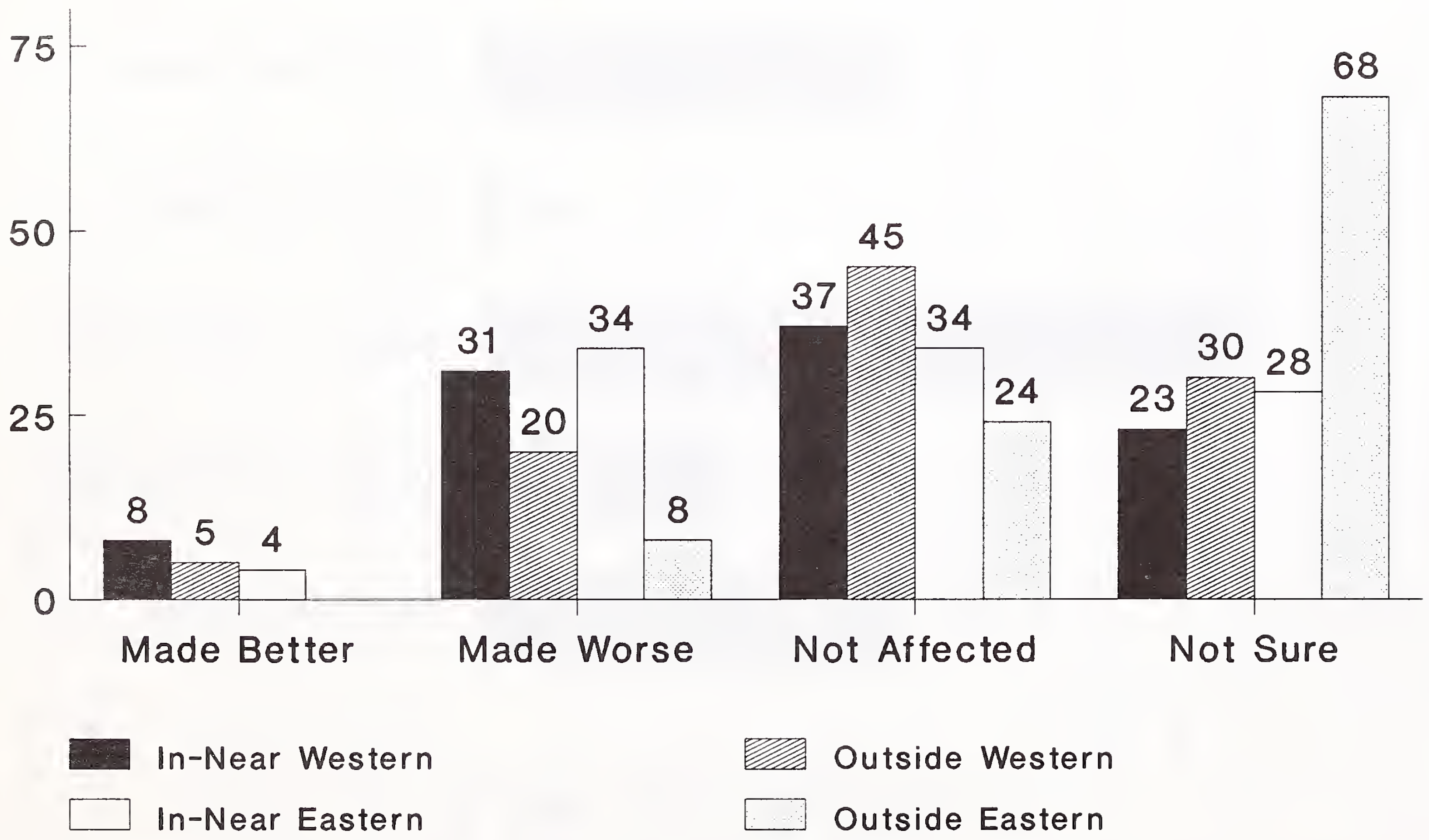
Does a hunter tend to know some people who started and some who stopped hunting in an area along the line? Of the people who said they knew someone who started hunting near the line, 42 percent said they also knew someone who stopped. But of the people who said they didn't know anyone who started hunting near the line, 84 percent also said they didn't know anyone who had stopped, either.

This suggests that hunters answered the questionly honestly, not trying to bias the outcome favorably or unfavorably toward the line. It also underscores the saliency of the line to hunters--especially those who hunted the area before the line was built.

# Table 10. Effects of the Transmission Line on Hunters



## Table 11. Hunters' Perceptions Of The Powerline's Impacts (in %)



When asked if the line's presence increased, decreased, or didn't affect the quality of hunting in the area, six percent said the line made hunting better, 29 percent said hunting was worse, 37 percent said the line had no effect, and 28 percent were not sure. These results varied only slightly between study areas (Table 11), but more widely based on length of experience. Among hunters in the area more than five years, 35 percent said the line decreased hunting quality, compared to 23 percent of the hunters there five years or less. The same proportion of each group (6 percent) said the line improved hunting in the area.

Perceptions of the line's impacts were related to other variables, as hypothesized in the Phase I and II reports. For example, 44 percent of the hunters who rated solitude as very important said the line made hunting worse; of the hunters who said solitude was important, only 23 percent said the line's effects were adverse. The same was true for viewing scenery; as this increased in importance, so did perception of the line as negative. Similarly, 40 percent of the hunters who said avoiding other hunters was important said the line made hunting worse, compared to about 18 percent of the hunters for whom avoiding others was not very or not at all important. Of the hunters who said the line's effects were negative, 47 percent had said there were too many roads in the area, while just 13 percent said there were too few roads.

Perceptions of the line also were related to planned use of the area; 50 percent of the hunters who said they planned to hunt the area less said the line decreased hunting quality, compared to 28 percent of those who said they planned to hunt the area as frequently.

since the line was constructed. The data did not permit solid conclusions about how many people stopped using the area because of the line. However, the line's impacts on elk hunting opportunities were well documented. It was clear that many hunters kept using the study areas even though they felt that it negatively affected their hunting. The study areas still retained attractive characteristics such as being close to hunters' homes.

The responses showed why the line was considered a negative impact, and by whom. Even people who favor more roads can believe the line has an adverse effect on hunting quality (although this proportion was small--about 10 to 15 percent).

## CONCLUSIONS

The results showed that hunters considered increased road access to be the line's primary impact to elk hunting opportunities. The aesthetic impacts of the towers, conductors, and cleared right-of-way also were evident, but did not appear to be as much of a concern. This may indicate the effectiveness of visual mitigation, although this was not tested directly.

As hypothesized, hunters who had been visiting the study areas for longer than 5 years were more likely to be adversely affected than short-term study area visitors. Hunters who desired experiences facilitated by the presence of fewer roads and fewer hunters also were more likely to say the line's impacts were stronger and more adverse. Managers should be concerned about these populations of hunters because they may have fewer alternative hunting locations capable of providing the types of experiences they are seeking.

We could not conclude that hunters who formerly hunted the study areas left when the line was constructed. However, hunters definitely reported less satisfaction because of the new roads (and the line itself). Other studies suggest that long-term users of a particular recreation setting continue to use that area because they have grown attached to it. These people will continue to visit the setting even if the area changes in ways that are perceived as adverse. Thus the people who are most adversely affected by the changes will be the ones least likely to leave. This points to the inadequacy of measuring recreational impacts by simply estimating how many people are displaced (and no longer use the area).

When combined with the findings from the Montana Bioeconomics Study, the results suggest that management of access roads is always a controversial process. Once roads are constructed they will generate conflict, regardless of how they are managed. Most hunters prefer to see new roads gated and locked, yet perceive that road closures are violated, diminishing their effectiveness. The results suggest that new road building be kept to the absolute minimum possible.

Many hunters said that they would like to see more enforcement of road closures and hunting regulations. A greater DFWP presence in the field would not only increase compliance with existing regulations, but would let hunters know that the agency is concerned. Game wardens would not be needed for this increased management presence; seasonal or part-time employees without enforcement capability would be effective (as long as they had radio contact with wardens, sheriffs, and other enforcement personnel).

# REFERENCES

Allen, S.D. 1983. **Hunter Survey: Phase I Baseline Report.** Report published by Montana Department of Natural Resources, Helena, MT and Conservation and Bonneville Power Administration, Portland, OR, November, 1984.

Allen, S.D. **Phase II Hunter Survey Final Report**. Report prepared for Montana Department of Natural Resources, Helena, MT and Conservation and Bonneville Power Administration, Portland, OR, April, 1988.

Canfield, J.E. 1988. **Impact Mitigation and Monitoring of the BPA 500 KV Garrison-Taft Transmission Line--Effects on Elk Security and Hunter Opportunity**. Draft report prepared by Montana Department of Fish, Wildlife and Parks, June, 1988.

Dillman, D.E. 1979. **The Total Design Method.** New York: Wiley & Sons.

Thompson, M. & B. Sterling. **Impact Mitigation and Monitoring of the BPA 500-kV Garrison-Taft Transmission Line--Effects on Elk Security and Hunter Opportunity; Annual Progress Report for 1985**. Montana Department of Fish, Wildlife and Parks, Helena.

# APPENDIX A

## Questionnaire and Cover Letter

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

TED SCHWINDEN, GOVERNOR
1520 EAST SIXTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE (406) 444-6699
HELENA, MONTANA 59620-2301

May 1988

Dear Elk Hunter:

During the 1986 general hunting season, we interviewed you at a check station near the DeBorgia/Middle Rock Creek/Cabin City area, asking questions about your elk hunt. At that time, you gave us your name and address so we could ask about your hunting in this area during the recent 1987 elk season.

We're asking you to complete the enclosed questionnaire to help us better understand elk hunting patterns in Montana. This information will be used to make decisions about future elk management.

You are one of a small number of hunters chosen to receive this survey. For our results to represent elk hunters in western Montana, we need to hear from you even if you hunted elk only once in 1987.

We think you'll enjoy completing the survey; we have yet to meet a hunter who doesn't like to think about elk or doesn't have an opinion on how elk should be managed!

It should take about 10 minutes to complete and we've included a stamped, addressed return envelope for your convenience. Your identity will be confidential because your name will never be associated with your responses.

Thanks for your help. If you'd like a summary of the results of this study, please write your name and address on the return envelope (not on the questionnaire) and I'll make sure you get one. If you have any questions, please call me (406-444-6182).

Sincerely,

Stewart Allen

Stewart Allen
Study Director

SA/jb
Encs.

CENTRALIZED SERVICES DIVISION (406) 444-6700
CONSERVATION DISTRICTS DIVISION (406) 444-6667
ENERGY DIVISION (406) 444-6697
OIL AND GAS DIVISION (406) 444-6675
WATER RESOURCES DIVISION (406) 444-6601

February, 1988

Dear Elk Hunter:

During the 1986 general hunting season, we interviewed you at a check station near the Harvey-Eight Mile area, asking questions about your elk hunt. At that time, you gave us your name and address so we could ask about your hunting in this area during the recent 1987 elk season.

We're asking you to complete the enclosed questionnaire to help us better understand elk hunting patterns in Montana. This information will be used to make decisions about future elk management.

You are one of a small number of hunters chosen to receive this survey. For our results to represent elk hunters in western Montana, we need to hear from you even if you hunted elk only once in 1987.

We think you'll enjoy completing the survey; we have yet to meet a hunter who doesn't like to think about elk or doesn't have an opinion on how elk should be managed!

It should take about 10 minutes to complete and we've included a stamped, addressed return envelope for your convenience. Your identity will be confidential because your name will never be associated with your responses.

Thanks for your help. If you'd like a summary of the results of this study, please write your name and address on the return envelope (not on the questionnaire) and I'll make sure you get one. If you have any questions, please call me (406-444-6812)

Sincerely,

Stewart Allen
Study Director

February, 1988

Dear Elk Hunter:

During the 1986 general hunting season, we interviewed you at a check station north of the Haugen-Saltese area, asking questions about your elk hunt. At that time, you gave us your name and address so we could ask about your hunting in this area during the recent 1987 elk season.

We're asking you to complete the enclosed questionnaire to help us better understand elk hunting patterns in Montana. This information will be used to make decisions about future elk management.

You are one of a small number of hunters chosen to receive this survey. For our results to represent elk hunters in western Montana, we need to hear from you even if you hunted elk only once in 1987.

We think you'll enjoy completing the survey; we have yet to meet a hunter who doesn't like to think about elk or doesn't have an opinion on how elk should be managed!

It should take about 10 minutes to complete and we've included a stamped, addressed return envelope for your convenience. Your identity will be confidential because your name will never be associated with your responses.

Thanks for your help. If you'd like a summary of the results of this study, please write your name and address on the return envelope (not on the questionnaire) and I'll make sure you get one. If you have any questions, please call me (406-444-6812)

Sincerely,

Stewart Allen
Study Director

February, 1988

Dear Elk Hunter:

During the 1986 general hunting season, we interviewed you at a check station near the DeBorgia/Middle Rock Creek/Cabin City area, asking questions about your elk hunt. At that time, you gave us your name and address so we could ask about your hunting in this area during the recent 1987 elk season.

We're asking you to complete the enclosed questionnaire to help us better understand elk hunting patterns in Montana. This information will be used to make decisions about future elk management.

You are one of a small number of hunters chosen to receive this survey. For our results to represent elk hunters in western Montana, we need to hear from you even if you hunted elk only once in 1987.

We think you'll enjoy completing the survey; we have yet to meet a hunter who doesn't like to think about elk or doesn't have an opinion on how elk should be managed!

It should take about 10 minutes to complete and we've included a stamped, addressed return envelope for your convenience. Your identity will be confidential because your name will never be associated with your responses.

Thanks for your help. If you'd like a summary of the results of this study, please write your name and address on the return envelope (not on the questionnaire) and I'll make sure you get one. If you have any questions, please call me (406-444-6812)

Sincerely,

Stewart Allen
Study Director

Dear Elk Hunter;

March, 1988

About three weeks ago, I wrote asking about your elk hunting in Montana last season. As of today, we have not yet received your completed questionnaire.

We're asking for your help to better understand how people hunt in western Montana. This information will be used to make decisions about future elk management here and at other Montana hunting areas. We believe that hunters' opinions should be an important consideration in management decisions.

I'm writing again because it's important that each questionnaire be completed. You are one of only about 200 hunters in the area to receive this survey; for our results to be representative, we need to hear from you even if you only hunted elk once in Montana last season.

Another copy of the questionnaire is provided in case the original one has been misplaced. We think you'll enjoy completing the survey; we have yet to meet a hunter who doesn't like to think about hunting or doesn't have an opinion on how elk should be managed!

It should take about 10 minutes to complete and we've included a stamped, addressed return envelope for your convenience. Your identity will be confidential because your name will not be associated with your responses.

Thanks for your help. If you'd like a summary of the results of this study, please write your name and address on the return envelope (not on the questionnaire) and I'll make sure you get one. If you have any questions, please call me at (406-444-6812).

Sincerely,

Stewart Allen
Study Director

Thank you for your help. Is there anything else you'd like to tell us about hunting in this area? We would appreciate any comments or suggestions.

45% had comments
54% did not

Thanks again. If you would like to receive a copy of the survey results, please write "Results requested" and your address on the back of the return envelope (*not on this questionnaire*).

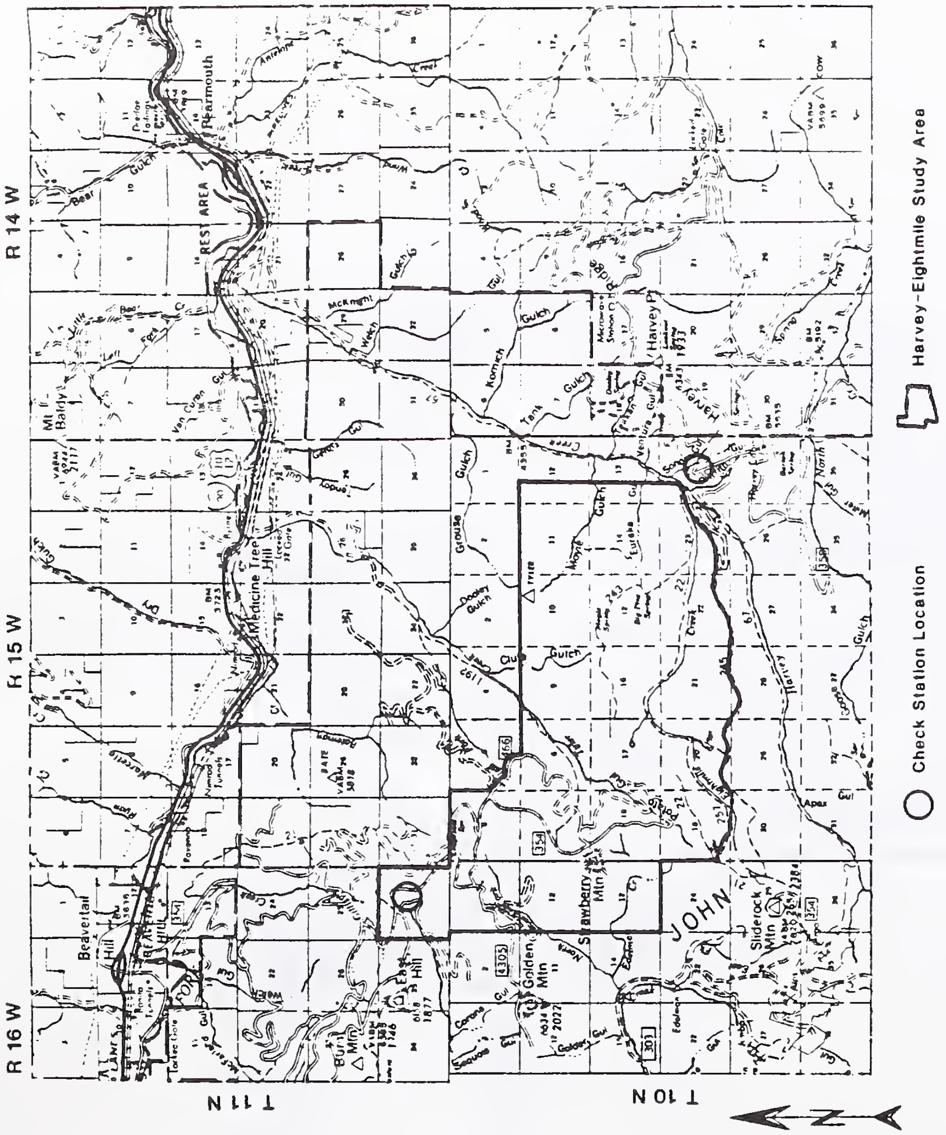
---

# WESTERN MONTANA
# ELK HUNTING SURVEY

STATE OF MONTANA

**DEPARTMENT OF NATURAL RESOURCES**
**AND CONSERVATION**
**1520 East Sixth Avenue**
**Helena, Montana**
**59620-2301**

LOCATION MAP FOR HARVEY-EIGHTMILE STUDY AREA



THESE LAST FEW QUESTIONS WILL HELP US UNDERSTAND YOUR RESPONSES BY KNOWING SOME BASIC INFORMATION ABOUT YOU.

1. Where are you from?

City: MT = 83% State: ______

2. What is your age? mean=41 med =39 ______ Years

3. Are you: 91 ☐ Male 9 ☐ Female

4. Are you a member of any hunting, conservation, or sport organizations?

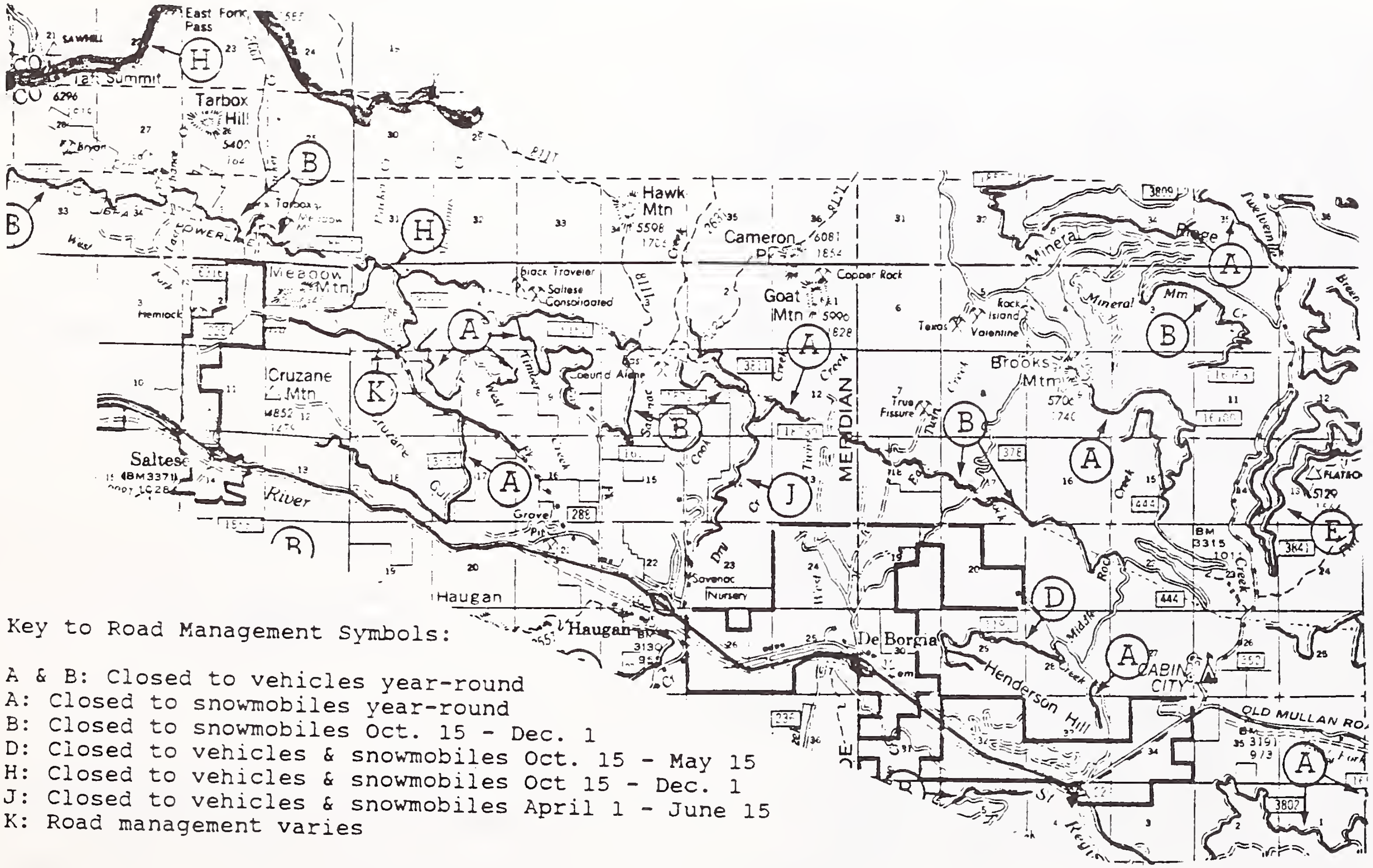
36 ☐ Yes 64 ☐ No

5. If so, which ones?

mean number = 4
med number = 2

6. What is the highest year of formal education you completed?

1 ☐ Some grade school
3 ☐ Finished grade school
8 ☐ Finished jr. high school
37 ☐ Finished high school
30 ☐ Some college
9 ☐ Finished college
6 ☐ Some postgraduate
6 ☐ Finished postgraduate



Key to Road Management Symbols:

A & B: Closed to vehicles year-round
A: Closed to snowmobiles year-round
B: Closed to snowmobiles Oct. 15 - Dec. 1
D: Closed to vehicles & snowmobiles Oct. 15 - May 15
H: Closed to vehicles & snowmobiles Oct 15 - Dec. 1
J: Closed to vehicles & snowmobiles April 1 - June 15
K: Road management varies

ALL OF THE FOLLOWING QUESTIONS
APPLY TO THE AREA YOU JUST DESCRIBED

8. How many years have you hunted elk in this area?
mean=11
med =6 Years

9. About how many days did you hunt elk in this area during this past hunting season?
mean=9
med =7 Days

10. How many separate trips did you make from your home to this hunting area this past season?
mean=7
med =4 Separate trips from home

11. Did you kill an elk in this area last season? (32 elk harvested)

18☐ Yes    82☐ No

12. If yes, was it:

50 ☐ Antlered
50 ☐ Antlerless

13. If antlered, how many points did it have on each side?

14 elk = 1 pt
10 elk = 5 pt
Points on side 1: ______

Points on side 2: ______

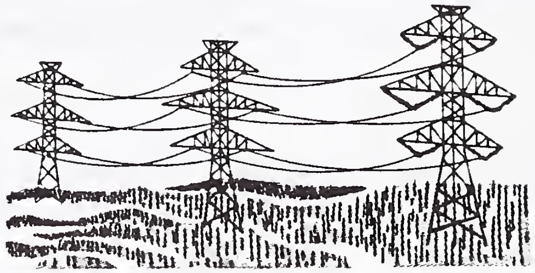
14. Was this the type of elk you wanted to shoot?

75☐ Yes    25☐ No

15. If not, what type had you been hoping for?

66 - branch antlered bull

WE HAVE A FEW QUESTIONS ABOUT ONE FEATURE YOU MAY HAVE SEEN IN THIS AREA DURING THE 1987 HUNTING SEASON, THE 500-KV TRANSMISSION LINE THAT CROSSES THIS PART OF WESTERN MONTANA (a sketch of the line is shown below).



31. How familiar are you with this transmission line?

56 ☐ Very familiar
27 ☐ Somewhat familiar
14 ☐ Slightly familiar
3 ☐ Have never seen it (*Please go to Question #35*)

32. Did you see the transmission line while hunting in this area last season?

87 ☐ Yes    13☐ No (*Please go to Question #35*)

33. If so, how close did you get to it while you were hunting?

walked along it = 33 within 1/4 mi = 15
crossed it = 26

34. Did you hunt along the transmission line corridor (the 125-foot or so cleared right-of-way under the line) in this area during the past hunting season?

46 ☐ Yes    54 ☐ No

35. Has the presence of the line or its access roads changed how you hunt this area?

38 ☐ Yes    62 ☐ No

36. If yes, could you briefly explain how it has changed your use of this area?
see table in text

37. Do you know which of the roads in this area were built just for the transmission line?

65 ☐ Yes    34 ☐ No

38. How did you use any of the transmission line access roads this past hunting season? (*Please check all that apply*)

6 ☐ I drove along one or more access roads

49 ☐ I walked along one or more access roads

36 ☐ I didn't use these roads for hunting

9 ☐ I'm not sure

39. Do you believe that the line's presence has increased the quality, decreased the quality, or had no effect on the hunting in this area? (*Please check one*)

6 ☐ Line has made hunting better in this area

29 ☐ Line has made hunting worse in this area

37 ☐ Line has not affected hunting in this area

28 ☐ I'm not sure

40. Do you know any hunters who have **started** hunting in this area because of the transmission line or roads?

17 ☐ Yes    83 ☐ No

41. Do you know any hunters who have **stopped** using this area because of the transmission line or roads?

21 ☐ Yes    79 ☐ No

`All numbers are % unless specified`

1. How many years have you been hunting elk? mean = 18 med = 15 Years

2. About how many days per year do you hunt elk? mean = 14 med = 12 Days

3. How many of these days are spent in Montana? mean = 14 med = 12 Days

4. How would you rate elk hunting? (*Please check one*)

22 ☐ It's my favorite outdoor recreation activity

48 ☐ It's one of my favorite outdoor recreation activities

29 ☐ It's just one of several outdoor recreation activities that I do

1 ☐ I prefer other outdoor recreation activities

5. Did you hunt in or near the area shown on the map at left on one or more days during the 1987 hunting season?

74 ☐ Yes (*Please go to Question #6*)

26 ☐ No (*Please go to Question #7*)

6. Where within this area did you hunt during the 1987 season? (*Please draw on the map at left to show what portions of this area you hunted in last season*)

7. If you did **not** hunt in this area last season, use the space below to describe the area in Montana where you spent the **most** time hunting elk during the 1987 general season.

________________________________________

(*Please specify either the hunting district or give details so we know where you hunted.*)

23. We'd like to know some of the reasons you hunt in **this area** to help us understand different types of hunters and their preferences.

Following is a list of possible reasons for hunting. Please check the box that says whether that reason is a very important, important, not important, or not at all important a reason you hunted in this particular area during the past hunting season.

| | **VERY IMPORTANT** | **IMPORTANT** | **NOT VERY IMPORTANT** | **NOT AT ALL IMPORTANT** |
|---|---|---|---|---|
| a. Good road access | 18 ☐ | 31 ☐ | 36 ☐ | 15 ☐ |
| b. For the solitude | 35 ☐ | 43 ☐ | 17 ☐ | 4 ☐ |
| c. Because there are lots of elk here | 25 ☐ | 53 ☐ | 21 ☐ | 1 ☐ |
| d. To test my hunting skills | 16 ☐ | 37 ☐ | 27 ☐ | 20 ☐ |
| e. It's close to home | 20 ☐ | 34 ☐ | 26 ☐ | 19 ☐ |
| f. To get a trophy elk | 10 ☐ | 17 ☐ | 37 ☐ | 36 ☐ |
| g. To be outdoors | 50 ☐ | 41 ☐ | 6 ☐ | 3 ☐ |
| h. For the meat | 39 ☐ | 40 ☐ | 16 ☐ | 5 ☐ |
| i. To view the scenery | 22 ☐ | 50 ☐ | 21 ☐ | 7 ☐ |
| j. Because I had a special permit for the area | 13 ☐ | 16 ☐ | 22 ☐ | 50 ☐ |
| k. To hunt with my family | 19 ☐ | 39 ☐ | 15 ☐ | 29 ☐ |
| l. To get away from other hunters | 31 ☐ | 35 ☐ | 17 ☐ | 9 ☐ |
| m. Other: ________ | 7 ☐ | 2 ☐ | 1 ☐ | 1 ☐ |

24. Could you please look back over this list and circle the letters of the **three most important** reasons you hunted in this area?

25. About how frequently do you plan to hunt in this area in the future? (*Please check one*)

56 ☐ As frequently as I do now (*Please go to #27*)
7 ☐ More frequently than I do now
16 ☐ Less frequently than I do now
20 ☐ I'm not sure (*Please go to #27.*)

26. If you plan to hunt this area more or less frequently, could you briefly explain why?

see table in text

27. For hunting purposes, do you feel the number of roads open to vehicle use in this area is: (*Please check one*)

15 ☐ Too few
61 ☐ About right
24 ☐ Too many

28. How would you prefer to see the recently-constructed roads in this area managed? (*Please check one*)

43 ☐ They should be gated and locked
15 ☐ They should be eliminated entirely
25 ☐ They should be left open for hunting
17 ☐ Other: ________

29. In this specific hunting area, do you feel road closures are being violated by hunters? (*Please check one*)

13 ☐ Road closures in this area are **frequently** violated
33 ☐ Road closures in this area are **sometimes** violated
28 ☐ Road closures in this area are **seldom** violated
6 ☐ Road closures in this area are **never** violated
20 ☐ I'm not sure

30. Following is a list of things you may have seen or experienced on your elk hunting trips in this area last season. Please check the box saying whether each item added to, detracted from, or didn't affect your hunting in this area last season.

| | STRONGLY ADDED | ADDED | DIDN'T ADD TO OR DETRACT FROM | DETRACTED | STRONGLY DETRACTED |
|---|---|---|---|---|---|
| a. Other hunters | 2 ☐ | 6 ☐ | 46 ☐ | 32 ☐ | 15 ☐ |
| b. Clearcuts | 4 ☐ | 19 ☐ | 51 ☐ | 17 ☐ | 9 ☐ |
| c. The weather | 7 ☐ | 17 ☐ | 45 ☐ | 18 ☐ | 12 ☐ |
| d. Gated roads | 17 ☐ | 23 ☐ | 36 ☐ | 13 ☐ | 10 ☐ |
| e. Dense woods | 11 ☐ | 29 ☐ | 44 ☐ | 13 ☐ | 2 ☐ |
| f. Transmission line towers | 2 ☐ | 6 ☐ | 58 ☐ | 18 ☐ | 16 ☐ |
| g. Rugged, remote country | 19 ☐ | 33 ☐ | 44 ☐ | 3 ☐ | 1 ☐ |
| h. Litter | 2 ☐ | 2 ☐ | 55 ☐ | 25 ☐ | 16 ☐ |
| i. Vehicle traffic | 2 ☐ | 5 ☐ | 47 ☐ | 31 ☐ | 14 ☐ |
| j. Transmission line access roads | 2 ☐ | 12 ☐ | 55 ☐ | 25 ☐ | 16 ☐ |
| k. Logging activities | 2 ☐ | 4 ☐ | 66 ☐ | 18 ☐ | 11 ☐ |
| l. Open roads | 8 ☐ | 17 ☐ | 48 ☐ | 16 ☐ | 11 ☐ |
| m. Other: _______ | 1 ☐ | 0 ☐ | 1 ☐ | 1 ☐ | 4 ☐ |

16. Did you take any other big game in this hunting area during the 1987 season?

35 ☐ Yes    65 ☐ No

⇩

17. If you did, which species did you shoot? (*Please check all that apply*)

52 ☐ Mule deer    ☐ Bear
70 ☐ White-tailed deer    ☐ Other: ____________

18. About how far is it from your home to this area?

mean=140 ______ Miles (*one-way*)
med= 50

19. Did you use a guide or outfitter while hunting in this area during the 1987 hunting season?

2 ☐ Yes    98 ☐ No

20. How does this area compare to other areas in Montana? (*Please check one*)

18 ☐ It's my favorite place to hunt
47 ☐ It's one of my favorite places to hunt
29 ☐ It's one of many places where I hunt
6 ☐ I prefer to hunt other places

21. What do you like **best** about hunting in this area?

see table in text

22. What do you like **least** about hunting in this area?

see table in text

# APPENDIX B

## State and Federal Agency Comments on the Draft Phase III Questionnaire

**Department of Energy**
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

In reply refer to: EVRE

25 NOV 1987

Mr. Kevin Hart
Montana Department of Natural
Resource and Conservation
1520 East 6th Avenue
Helena, MT 59220

Dear Kevin:

We have reviewed the draft Phase III Hunter Survey and agree that it is much too long.

I know that some questions are probably in the survey to be consistent with the bio-economics study and where we can accommodate those, okay, but not at the expense of this study.

We suggest the following be deleted:

#4, 8, 13, 14, 18, 19, 22, 23, 36, 37, 38, 50, 51, 52, 54. Also delete # 4, 7, and 8 from the last sections. We feel that those listed above have little to do with the transmission line study and would urge they be considered for deletion.

We also have the following comments and suggested changes.

#40 - This is very long and imposing looking and, as it follows another similar looking thing (#39), could it be moved so it doesn't scare people off?

#43 - (please go to question #46). Shouldn't that read, "go to question #47?"

#44 - This is confusing, some could have driven under the line while going to their hunting area.

#45 - Will the term corridor confuse people? Do you mean cleared right-of-way?

Would some people think that it is illegal to hunt under the line, perhaps, due to signs on closed roads, and not answer #45 and 46 truthfully?

#48 and 49 - Although these may try to measure hunters perceptions, these are so subjective, particularly in this dry, warm year, that we are not sure if the answers will be anything but biased.

#51 and 52 - It would seem better to relate to peoples' direct experience rather than on hearsay, which is what you might get from these guidelines. We would delete these.

#53 - This is a very negative question. If you moved parts b, c and d to question #45, you would ask it in a neutral manner. Then delete #53.

#54 - I understand the management implications of this question and it is important for FWP to know, but it is out of place here in an already long questionnaire.

Kevin, we would appreciate reviewing the draft one more time, or at least give us a call and lets talk about it. Many of these suggestions are only to reduce the length; in others, the questions themselves give us some problem. They should be evident.

Any questions about them, give Jack or me a call.

Sincerely,

Phil

Phillip D. Havens
Environmental Specialist

Montana Department
of
Fish, Wildlife & Parks

Kevin Hart
Project Coordinator
Facility Siting Bureau
Energy Division
DNRC
Helena, Mt. 59620

Dear Kevin,

Thank you for the opportunity to comment on Stewart's draft Phase III questionnaire. Basically, it looks good. I question the need for the amount of background information requested and the need to answer questions about "why they hunt". It would be more interesting to know why they chose the specific area to hunt (in their own words) in this questionnaire. Also, I do not feel like there is a question which gets at whether or not hunters perceive closures on new BPA access roads. Since much of the mitigative effort in this project has thus far focused on road closures, I think it is important to know how hunters perceive these efforts. Other specific comments I have made directly on the draft (please find enclosed).

I have been monitoring traffic counters for an additional year of data for the hunter opportunity study. In the past, Mike Thompson charged DNRC for the mileage accrued to monitor the counters. Is that appropriate this year also?

I'll look forward to the final Phase II report and the final Phase III questionnaire. My (indirect) thanks to Stewart for getting the maps from the last questionnaire to me.

Sincerely,

Jodie Canfield

Jodie Canfield
Wildlife Biologist

cc: Firebaugh, Mundinger

**Montana Department
of
Fish, Wildlife & Parks**

3201 Spurgin Road
Missoula, MT 59801

November 25, 1987

Kevin Hart
Facility Siting Bureau
Energy Division
Dept. of Natural Resources & Conservation
1520 E. Sixth Ave.
Helena, MT 59620

Dear Kevin:

I reviewed Stewart Allen's draft of the mail questionnaire survey for Phase III of the hunter survey. The survey is certainly thorough, however, it seems that portions of it tend to include more than the original intent. It needs to be cut down somewhat to focus on the BPA study and hunter perception of what the imapcts from the powerline, access, etc. are. A shorter, more concise survey may elicit a greater response, also. I have circled several questions on the enclosed draft that I believe are not necessary for the survey.

Thank you for the opportunity to comment on this draft.

Sincerely,

John Firebaugh

John Firebaugh
Regional Wildlife Mgr.

JF/pm

# APPENDIX C

## Summary of Findings, Montana Bioeconomics Study

* 18 percent were successful in taking a elk (20 percent of the nonresidents and 17 percent of the residents)

* 81 percent of the elk taken by Montana residents were antlered, compared to 78 percent of the elk taken by nonresidents

* Of the residents' antlered elk, 35 percent had one point on side 1 and 16 percent had six points on side 1

* Of the nonresidents' antlered elk, 28 percent had one point on side 1 and 22 percent had six points on side 1

* 40 percent of the nonresidents and 33 percent of the residents harvested other game on their most recent elk hunting trip

* 66 percent of the other animals taken were mule deer, 30 percent white tailed deer, and 2 percent bear

* The average (median) number of miles walked was 6

* 13 percent were alone in their vehicle, 41 percent were with one other hunter, 29 percent with 2 others, and 12 percent with 3 others

* 10 percent said they didn't see any other hunters; the median number of others seen was 9 (mean number seen was 17)

* 49 percent said the number of other hunters seen was about as many as expected, while 34 percent said it was more and 17 percent said it was fewer than expected

* One-third of the sample said that the other hunters affected their own enjoyment of the trip

* If hunters were affected by others, the most common reason was not enough space/too many people (which comprised 24 percent of the responses made), noise or visual intrusions (22 percent), less solitude (11 percent), competition for game (11 percent), and road hunting (9 percent)

Hunters were presented with a list of 16 possible reasons for hunting where they did, and asked to rate the importance of each. Of the five most important reasons people hunted where they did, only one was directly related to elk populations. Of the two items traditionally viewed as the main products of elk hunting opportunities, hunting for meat was rated as a more important reason than taking a trophy.

Several questions addressed hunting management issues. The first set of questions asked hunters about access roads used for hunting:

- * 68 percent said the number of roads open to vehicle use in the area was about right, 10 percent said there were too few, and 22 percent said there were too many roads for hunting purposes
- * 33 percent said the number of open roads had not changed in the area in recent years, 24 percent said they were fewer open roads, 13 percent said there were more, and 28 percent were not sure
- * 53 percent said hunters should be able to retrieve game with vehicles only on open roads, 31 percent said using closed roads should be allowed, and 22 percent said hunters should be allowed to use vehicles off roads to retrieve game

The other set of management questions presented hunters with six hunting management scenarios and asked whether they would favor the policy, not favor it but accept it, would not accept it, or would need more information to make a decision. The following tables show how residents and nonresidents viewed the management options.

A. No special permit to hunt bull elk would be needed. There would be considerable competition for bull elk but no restrictions other than having a license. You could hunt every year but your odds of getting a bull would be less than 1 in 10.

| | Residents | Non-residents |
|---|---|---|
| Favor | 39 | 20 |
| Do Not favor but Would Accept | 24 | 24 |
| Not Acceptable | 17 | 29 |
| Would need more information | 21 | 26 |

B. An unlimited number of bull elk permits would be available. You would be able to get a permit every year but you would have to choose the one district where you would hunt and not be able to hunt in any other districts.

| | Residents | Non-residents |
|---|---|---|
| Favor | 18 | 26 |
| Do Not favor but Would Accept | 32 | 34 |
| Not Acceptable | 39 | 28 |
| Would need more information | 10 | 11 |

C. A limited number of bull elk permits would be available through a drawing in June. You would have to choose the one district where you would hunt and not be able to hunt in any other districts. You might get a permit only once every 5 years, but if you did obtain a permit you would have a much better chance (than 1 in 10) of getting a bull.

| | Residents | Non-residents |
|---|---|---|
| Favor | 10 | 18 |
| Do Not favor but Would Accept | 18 | 24 |
| Not Acceptable | 63 | 45 |
| Would need more information | 8 | 12 |

D. The taking of bull elk would be subject to point regulations. Hunters could shoot only bulls that had at least one antler with 2 or more points.

| | Residents | Non-residents |
|---|---|---|
| Favor | 41 | 53 |
| Do Not favor but Would Accept | 32 | 28 |
| Not Acceptable | 19 | 12 |
| Would need more information | 7 | 7 |

E. The taking of bull elk would be subject to point regulations. Hunters could shoot only bulls that had at least one antler with 5 or more points.

| | Residents | Non-residents |
|---|---|---|
| Favor | 10 | 16 |
| Do Not favor but Would Accept | 22 | 29 |
| Not Acceptable | 60 | 46 |
| Would need more information | 7 | 8 |

F. To reduce pressure on bulls, antlerless elk permit holders would be allowed to hunt only antlerless elk and only in the hunting district where their permit was valid.

| | Residents | Non-residents |
|---|---|---|
| Favor | 57 | 57 |
| Do Not favor but Would Accept | 22 | 22 |
| Not Acceptable | 14 | 12 |
| Would need more information | 7 | 8 |

Hunter Types. A cluster analysis was conducted on seven of the 16 reasons for choosing to hunt a given hunting area on their last trip. The seven items were selected because initial clustering runs and past research suggested that they would be the most efficient variables identifying distinct types of hunters--each of whom hunted for different reasons. Four distinct types of hunters were identified, each having different trip characteristics, management preferences, and net economic values.

Nature hunters said they were hunting to be outdoors, for the solitude, to be close to home, and to get away from other hunters. Seventy-seven percent were Montana residents. Hunting for meat, enjoying the scenery, being in a natural area, and being with their family were all less important.

Their four most important reasons for hunting where they did could apply to a wide variety of outdoor experiences in a natural environment--not just hunting. They were avid outdoors enthusiasts who likely participated in many recreational activities (only 13 percent said elk hunting was their favorite outdoor recreation activity).

Generalist hunters said their most important reason for hunting was being outdoors, followed by hunting where game was abundant, for the solitude, for the meat, and because they'd had success hunting there before. Of the hunters in this cluster, 69 percent were Montana residents.

Their reasons for hunting were much more harvest-related than those of Nature hunters, suggesting that this group contained more serious hunters for whom hunting may not be as inter-changeable with other activities. The highest percentage of the four clusters said that elk hunting was their favorite activity, and they saw and killed more elk than any other cluster.

Trophy hunters were the only group that rated getting a trophy as more important than getting meat. Avoiding other hunters was more important than it was for the other clusters, probably to decrease competition for elk.

Their most important reasons for hunting where interviewed were to be where game was abundant, be with friends, get a trophy elk, to be outdoors, and to be with their families. Of the hunters in this cluster, 48 percent were Montana residents, the highest proportion of nonresidents among the four types. Twenty-one percent said elk hunting was their favorite activity.

Meat hunters said that hunting for meat was their most important reason for hunting, followed by being where game was abundant, hunting close to home, being outdoors, and because they'd had good success there before.

This group valued hunting for meat more than did the generalist hunters, and placed far less value on trophies. They rated solitude, being outdoors, enjoying the scenery, being in a natural area, and being in rugged terrain as less important than did any of the other types. These were still rated as moderately important, however. Of the hunters in this group, 88 percent were Montana residents, the highest proportion of any type.

DOE/BP-16380-4
July 1989
250